S1. Implementation Status

Table 1 presents the data collected from all the evidence, organised under each subcode. This is raw data, copied directly from the online evidence (hyperlinks) as it was gathered.

Table1: Raw data of implementation status of each subcode, offering insight into where and how these policies are being applied.

Subcode (Theme)	Implementation status (data collected from online evidence)
Data collection Methods (Monitoring)	Bay of Bengal Programme (BOBP) in 2018 organised a workshop on Knowledge Management in Marine Fisheries with twenty-two participants representing the Department of Fisheries of the Governments of Tamil Nadu and the Union Territory of Puducherry; Research and Development Organisations; NGOs; and Fisher Community attend the Workshop. Mr Philip Townsley, Consultant working with the BOBP-IGO conducted the Workshop. The attached photos provide a glimpse of the Workshop. BOBP-IGO is conducting a Training Course on “Audio-Visual Documentation for Knowledge Management in Marine Fisheries Sector in the Maldives" from 22 Feb - 03 March 2017. The objective of the Training Course is to develop capacities of actual fisheries practitioners or the primary stakeholders to document their knowledge and tell their own stories. Through this Course, the youth from traditional fisher families and fisheries officials are being trained in preparation of video documentaries and awareness material to capture, collate and communicate systematic and folk knowledge in the marine fisheries sector of Maldives. Six trainees representing the Maldives Fishermen Organisation and the Ministry of Fisheries & Agriculture, Government of Maldives are taking part . CMFRI have completed an in house project on "Development of knowledge based information system for marine fisheries sustainability" To address this, the Ministry of Earth Sciences initiated the Marine Satellite Information

	Services (MARSIS) program, which uses satellite data to identify Potential Fishing Zones (PFZs), helping fishermen locate fish more efficiently. This improves profitability and socio-economic status by reducing search time and resources used. PFZ advisories, provided in multiple languages, are disseminated through various channels like telephone, fax, email, websites, TV, radio, and mobile apps. The use of Information and Communication Technology (ICT) has been key in this process. Initially, simple LED boards displayed PFZ information, which have since evolved to sophisticated Electronic Display Boards with LCD monitors for colored map displays. These advisories have significantly increased fish catches in PFZ areas compared to others, especially benefiting artisanal and small-scale fishermen by saving fuel and reducing effort. CMFRI in its report "VISION 2030" has stated that "it is maintaining a imiquely huge bio-statistical database which is constantly used to come out with region specific marine policy advisories. However, the spatio-temporal dissonance of the existing data management system vis-a- vis the geographical spread of the Indian EEZ needs to be reduced in order to augment the predictive power of the models. Participatory approaches involving the stakeholders in the stock assessment process will be resorted as a way out. Another approach here is to broaden the biological database through independent oceanic explorative studies in the whole of Indian EEZ. We aim to improve our capacity in formulating and disseminating regional marine fisheries management plans premised on the ecosystem approach and sensitive to tropical bioecological and socio-political realities. Priority will be given to the establishment of a National Fisheries Grid-GIS Platform for Marine Fisheries Management which will strengthen the National Marine Fisheries Information System" . centrally Sponsored Scheme (CSS) – ‘Blue Revolution: Integrated Development and Management of Fisheries’: Launched in 2015-16 with an outlay of Rs 3000 crores for a period of 5 years, this scheme aims to sustainably harness the potential of the fisheries sector. Pradhan Mantri Matsya Sampada Yojana (PMMSY): Launched in May 2020, with an investment of Rs. 20,050 crore for a period of five years (2020-21 to 2024-25), this flagship scheme targets

	sustainable and responsible development of the fisheries sector across all States and UTs. Established in 2018-19 with a fund size of Rs. 7522.48 crores, the FIDF provides concessional finance to State/UT Governments, their entities, and the private sector for developing fisheries infrastructure. This includes projects such as fishing harbours, fish landing centres, ice plants, cold storage, fish transport facilities, and fish processing units. Handbook Fisheries Statistics, 2022-23 Table 8.4 1. **Blue Revolution: Integrated Development and Management of Fisheries** had a budget estimate (BE) of 560 crores, a revised estimate (RE) of 700 crores, and an actual expenditure (EXP) of 699.72 crores. 2. **National Fisheries Development Board (NFDB)** had a BE of 77.5 crores, an RE of 32.28 crores, and an EXP of 32.25 crores. 3. **Fisheries and Infrastructure Development Fund (FIDF)** had a BE of 10 crores, an RE of 10 crores, and an EXP of 9.5 crores. The subtotal for these top three categories was 741.47 crores. The detailed expenditure for other institutions and schemes were as follows: 4. **Fisheries Survey of India (FSI)** had an expenditure of 72.7 crores. 5. **Central Institute of Fisheries Nautical and Engineering Training (CIFNET)** had an expenditure of 30.55 crores. 6. **National Institute of Fisheries Post Harvest Technology and Training (NIFPHATT)** had an expenditure of 10.02 crores. 7. **Central Institute of Coastal Engineering for Fishery (CICEF)** had an expenditure of 3.8 crores. The subtotal for these institutions (FSI, CIFNET, NIFPHATT, CICEF) was 117.07 crores.

	Additional expenditures were listed as: 8. **Directorate of Aquatic Animal Health & Quarantine (DAAHQ)** with an expenditure of 4 crores. 9. **Coastal Aquaculture Authority (CAA)** with an expenditure of 3 crores. There was no expenditure listed for the scheme "Package for replacement of Fishing vessels seized by Pakistan". 11. **Secretariate Economic Services** had an expenditure of 18.28 crores. - Under the Blue Revolution scheme from 2015-16 to 2019-20, Kerala received a total of 23,274.38 lakhs. - For the fiscal year 2020-21, under the Pradhan Mantri Matsya Sampada Yojana (PMMSY), Kerala received 800.00 lakhs. - In 2021-22, the amount increased significantly to 7,810.95 lakhs under PMMSY. - The combined total funds released to Kerala for the fisheries sector across the Blue Revolution and PMMSY schemes from 2015-16 to 2021-22 amounted to 31,885.33 lakhs. Table 8.5 (B) For the fiscal year 2019-20 in Kerala: - The state share of funds released was 3,517.80 lakhs. - The central share of funds released was 9,357.15 lakhs. - The total funds released for the development of the fisheries sector was 12,874.95 lakhs. For the fiscal year 2020-21 in Kerala: - The state share of funds released was 3,691.30 lakhs. - The central share of funds released was 4,204.44 lakhs. - The total funds released for the development of the fisheries sector was 7,895.74 lakhs. This indicates that the government's investment in Kerala's fisheries sector was substantial, with the total fund released over two years amounting to 20,770.69 lakhs. The central government's contribution was notably higher in 2019-20, while the state government's

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Tracking methods (Monitoring)	GEMINI, a handheld device, leverages the GPS-aided geo-augmented navigation (GAGAN) system used at Indian airports to fill the communication gap for fishermen. It transmits data to mobile phones via an app and covers the seas around India, providing timely warnings of sea storms and cyclones, and transmitting locations of fish shoals. This system, a result of

	collaboration between the Indian National Centre for Ocean Information Services (INCOIS) and the Airport Authority of India, utilizes geosynchronous communication satellites developed by the Indian Space Research Organisation (ISRO). The system is particularly beneficial in mapping Potential Fishing Zones and offering Ocean States Forecast services. The Central Marine Fisheries Research Institute (CMFRI) is working with ISRO to develop a satellite-based ocean forecasting model to provide advisories on Potential Fishing Zones (PFZs). This collaboration aims to help fishermen locate fish shoals efficiently, conserving time and fuel. The project, named “SAMUDRA,” focuses on using remote-sensing techniques to develop better weather warning systems and inform fishermen about the best fishing times. This initiative was influenced by the need for improved safety measures following the devastating impact of Cyclone Ockhi in 2017, which highlighted the lack of advance weather warnings for fishermen. The introduction of a token system was discussed at a meeting in Kochi, Kerala, organized as part of SAFARI-2, an international symposium under the Central Marine Fisheries Research Institute. This meeting involved fishermen, scientists, and officials, and was held in response to the challenges faced during cyclone Ockhi, particularly the lack of information on the number of fishermen and fishing boats at sea. The proposed token system aims to provide an exact count of people venturing out to sea (ICSF) However, the implementation of this system has faced resistance, particularly in the Kasimedu fishing harbour. Fishermen and boat owners expressed concerns about the practicality of the system and its impact on their operations. They questioned the safety guarantees and highlighted the challenges in adhering to such a system given the nature of their work and the variability in laborers working on boats (ICSF) The Union Ministry of Home Affairs has issued guidelines for the color coding of fishing boats. For example, in some states, the entire cabin and portions around the hull should be painted in light green, with registration numbers painted in black for visibility. In other states, different color schemes are specified, such as cabins painted blue, upper and lower portions of boats' bodies painted white and black, respectively. The hull is required to be dark blue, and the wheelhouse orange.

	In Kerala, the Department of Fisheries has mandated fishing boat owners to change the color of their boats according to the prescribed color code by the Government of India. The hull of the boats should be painted dark blue while the wheelhouse should be painted orange. The directive includes a compliance deadline, and failure to comply will result in non-renewal of licenses and registration for the fishing boats. The Department of Animal Husbandry, Dairying, and Fisheries, under the Ministry of Agriculture and Farmers Welfare, initiated the issuance of biometric identity cards to coastal fishermen. As of now, more than 12 lakh cards have already been issued. By June of this year, it is planned that nearly 20 lakh fishermen out of the 1.5 crore fishermen in the country will be issued these biometric cards. These identity cards are part of enhanced security measures along the coast. The distribution of Biometric Fingerprint Identity Cards (BFICs) to fishermen includes areas such as Paradip Port Township, which is a major port serving the eastern and central parts of India. Additionally, the Department of Fisheries has been asking fishermen living along the coast in regions like Bhogapuram and Poosapatirega mandals to submit their biometric details for receiving these identification cards. Fishing boats operating along the coast are required to have a license, and those without ID cards and licenses for fishing in these areas could face unspecified penalties. The Indian government has made it mandatory for all mechanized fishing vessels to be installed with VMS tracking units. This includes developing and improving systems to ensure that all vessels fishing in the area are fitted with fully operational automatic location communicators (VMS) that report back to the flag state.Additionally, India has launched a real-time vessel tracking system that can help seafarers and fishermen in times of need. This system is capable of tracking Indian vessels globally. The system was launched by Prime Minister Narendra Modi at the Maritime India Summit in 2021. It is operated by the Directorate General of Shipping (DG Shipping) and is designed to provide organized assistance in cases of emergency . AIS has been made compulsory for all vessels above 20 meters. This requirement is part of the measures taken by the National Committee on Strengthening Maritime and Coastal

	Security.The National Automatic Identification System (NAIS) has been successfully implemented along the Indian coastline. This system provides coverage to the entire Indian Coast, with 74 lighthouses fitted with the Saab systems. It's used by the Indian Navy, Coast Guard, and DG Shipping for real-time merchant traffic information. The Home Ministry has estimated a cost of Rs 336 crore for installing two lakh transponders in small fishing boats at the cost of Rs 16,800 each. This project is implemented by the Department of Animal Husbandry, Dairying and Fisheries under the Agriculture Ministry with technical assistance from the Directorate General of Lighthouses and Lightships. As of the latest information available, there has been progress in installing AIS transponders in small fishing vessels, particularly in Tamil Nadu. However, the implementation has faced delays for vessels under 20 meters. The central government has approved a project for the national rollout of vessel communication and support systems, including transponders, on approximately 100,000 fishing vessels across all coastal states and Union territories. This initiative was announced in an affidavit filed by Manas Kumar Sinha, officer on special duty at the National Fisheries Development Board, Bhubaneswar, on behalf of the secretary, Department of Fisheries, Ministry of Fisheries, Animal Husbandry, and Dairying, Government of India, in June 2023. It will be implemented under the Pradhan Mantri Matsya Sampada Yojana (PMMSY) scheme with 100 percent government funding on a 60:40 cost-sharing basis between the Centre and state. The central government has entrusted New Space India Ltd, a central public sector undertaking under the Department of Space, as the implementing agency for the project. The central government has approved a project for the national rollout of vessel communication and support systems, including transponders on approximately 100,000 fishing vessels across all coastal states and Union territories. These transponders are wireless tracking devices that use radio frequencies. The project is part of the Pradhan Mantri Matsya Sampada Yojana (PMMSY) scheme, implemented with 100% government funding on a 60:40 cost-sharing basis between the Centre and state. Tamil Nadu has launched ISRO-developed upgraded transponders on over 4,000 mechanized boats to assist fishermen engaged in deep-sea fishing. These devices provide two-way communication, allowing fishermen to send and receive information, and enable authorities to precisely locate boats in the deep sea, aiding in rescue efforts.

	The Indian Union Ministry of Fisheries released “the draft guidelines for the regulation of fishing by Indian flagged vessels in the high seas 2022.” This draft is part of the process of formulating rules for issuing permits for high seas fishing, which will be valid for two years at a time. Fishing vessels navigating beyond 12 nautical miles up to 200 nautical miles are required to register under specific sections of the relevant act. The guidelines also mention regulations for fishing in international waters, including compliance with International Maritime Organisation (IMO) Norms. FSI in their publications section mentions about the technical report "REMOTE SENSING OF MARINE FISHERIES : STATE OF THE ART CUM INDIAN EXPERIENCE A. NARAIN, BEENA KUMARI, H.V. SOLANKI, R.M. DWIVEDI, NEERA CHATURVEDI, AND MINI RAMAN"; In India studies on aplication of remote sensing in marine fisheries was started with the collaborative efforts by ISRO, CMFRI and FSI, as a Joint Experiment Programme during 1979-1984. These studies have ultimately reached the stage of generation of Potential Fishing Zones (PFZ) forecasts based on SST data from the NOAA-AVHRR sensor. The objective of this report is to describe the methodology in the fishery forecast besides giving an introduction to the field of remote sensing. Specific case studies also have been presented on feature related application of sea surface temperature to fishery resource. One of the reports is about: 1) Satellite Remote Sensing Fisheries Applications and Adoption of Remote Sensing Technology. CMFRI on their ongoing project section on their website has mentioned about the project: Enhanced modelling for the marine fishery resource management and prediction with application of remote sensing, sample designing and artificial intelligence (FRA/MDL/02). PI: Dr. J. Jayasankar. The Fishery Survey of India (FSI) and the Indian Space Research Organisation (ISRO) do collaborate on projects involving marine remote sensing. One notable initiative is the Marine Satellite Information Services (MARSIS) programme, initiated by the Ministry of Earth Sciences (formerly the Department of Ocean Development). MARSIS, which began in June 1990, was

	designed to utilize oceanographic data, particularly satellite data, for managing oceanic resources. This program saw collaboration among scientists from marine sciences, remote sensing, and fishery science to develop techniques that use remotely sensed sea surface temperature (SST) data for identifying locations of fish aggregation. This collaborative effort has successfully demonstrated the application of satellite-derived data for demarcating 'Potential Fishing Zone (PFZ)' as a proxy to potential shoals of fish aggregation in Indian waters. The Kerala government has begun the installation of these high-security registration boards on fishing boats. The State Fisheries Department is overseeing this project, which focuses on the protection and remote monitoring of the boats. Initially, hologram registration boards are being installed on 300 boats, with over 100 boats already equipped in Neendakara, Munambam, and Kochi fishing harbours. The project aims to cover over 4,000 fishing boats across the state in subsequent phases. These high-security registration boards are designed to withstand harsh sea conditions and include laser systems to detect fake registrations. The boards' design allows for clear 360-degree views, minimizing damage from direct contact with saltwater and collisions between boats. They are attached to all four corners of the board, ensuring durability even in rough climates and strong winds. The tracking system will alert boats when they enter danger zones or other countries' waters. The GSM-based tracking device can track vessels beyond 15 km and has a high back-up battery capacity. It also features a three-axis accelerometer for motion sensing, which can detect tilting or overturning of the fleet. This system is crucial for enforcement agencies, including the Coast Guard, Coastal Police, and Navy, to monitor fishing activities and prevent crimes such as smuggling using fishing vesselsThe tracking system will alert boats when they enter danger zones or other countries' waters. The GSM-based tracking device can track vessels beyond 15 km and has a high back-up battery capacity. It also features a three-axis accelerometer for motion sensing, which can detect tilting or overturning of the fleet. This system is crucial for enforcement agencies, including the Coast Guard, Coastal Police, and Navy, to monitor fishing activities and prevent crimes such as smuggling using fishing vessels The Fisheries Department in Kerala has introduced holographic registration for fishing vessels to aid in coastal security and faster identification of vessels during sea rescue operations. The holographic registration plates (HRPs) are tamper-proof and will be fitted with GPS and GPRS facilities for real-time monitoring. A microchip containing details of the vessel

	and its crew is also likely to be integrated into these plates. This initiative aims to ensure uniformity in vessel identification and bolster maritime and coastal security.
Stock assessments (Monitoring)	The CMFRI undertakes comprehensive marine fish stock assessments, which have shown that a significant proportion of fisheries in India have enough population to support maximum sustainable yield. For instance, a report found that 117 out of 135 fisheries, or about 86.7%, had sufficient population levels. The CMFRI's approach involves the assessment of exploited marine fishery resources through the estimation of marine fish landings all along the Indian coast. This is part of their mandate to develop management advisories through periodic stock assessments of important marine fish stocks for sustained production from the sea. Further, the CMFRI has carried out stock assessments of different commercially important marine fish species using data spanning six decades (1950-2010). This extensive analysis has categorized the resources into various classes based on their abundance, with some groups being classified as abundant and others as less abundant, declining, depleted, or collapsed. The institute has derived potential yield and optimum fleet size for various maritime states in India, which is crucial for sustainable management of marine resources. CMFRI also developed a national database on marine fishery resources, providing detailed information on species, gear, and fishing zone wise landings and fishing effort. This database includes digitized historical information on catch and effort of marine fishery resources. The institute has implemented "Fish Watch," a system for disseminating field information in near real-time, which includes daily updates on fish landing figures and prices at major fishing harbors since 2010. Chip-based smart registration cards, known as Marine Fishers Identity Cards (MFID), have been implemented in Indian marine fisheries. The scheme for issuing biometric ID cards to coastal fishermen was launched by the Department of Animal Husbandry, Dairying Fisheries, Ministry of Agriculture and Farmers Welfare on December 11, 2009, at a total cost of 72.0 crore INR. The objectives of this scheme include empowering Indian coastal fishermen through bio-metric ID cards, establishing a National Marine Fishers Database (NMFD) accessible by authorized agencies, strengthening coastal security, and eliminating duplications of cards issued to fishermen by different agencies/states.

	The implementation of Marine Fishers Identity Cards (MFID) in India, which began in 2009, has made significant progress but has also faced challenges and delays. As of March 2023, the Government of India has issued biometric identity cards to 19,16,781 fishermen and QR Coded PVC Aadhaar cards to 12,40,869 fishermen. These cards are intended to facilitate financial and technical support under various government schemes and for identification at sea by coastal security agencies. In addition, the Customs Department in India plans to deploy biometric card readers to check the identities of fishermen. These card-readers, manufactured by the Electronics Corporation of India Limited (ECIL), will verify the credentials of marine fisheries identities in coastal villages. The government aimed to issue approximately 2 million biometric cards to fishermen in coastal areas by the summer of 2016. In Kerala, following an amendment to the Kerala Marine Fishing Regulation (KMFR) Act in October 2018, the Fisheries Department identified 44 yards building fishing vessels in the district for mandatory registration. This move was expected to bring much-needed accountability to the largely unregulated fishing boat building yards. Owners of these boat yards were given three months to comply with the registration requirements, which include meeting certain safety standards and furnishing various documents. Nationally, the Registration of Indian Fishing Boats is addressed in Part XVA of the M. S. Act of 1958. The Government of India, through the Review Committee, suggested amending Section 435 A of the M. S. Act to restrict the application of Part XVA to fishing boats of the length of 20 meters and above. This amendment would require fishing boats less than 20 meters as specified to be registered under the Act, and the matter is under consideration by the government.
Marine spatial planning (Control)	There is no clear evidence that Ecologically and Biologically Significant Areas (EBSAs), Vulnerable, Marine Ecosystems (VMEs); protection of iconic and endangered and threatened (ETP) for ecology and biology in the implementation structure, or places where the marine life is fragile and needs protection, have been put into action. Also, there isn't much done for the

	protection of well-known sea animals that are in danger of extinction. The last review of some marine protected areas in India was in 2018-19. They checked five areas to see how well they are doing. They used a quick scoring system based on expert opinions to rate each area's natural, social, and management quality. They found out what each area is doing well and what needs to be improved. The report said that four out of the five areas have problems with dirty water because of waste from factories, homes, and mines, increased salt in the water, and less fresh water coming in. Three areas don't have enough workers for everyday tasks or the right experts to handle science and community issues. The Pitti Wildlife Sanctuary doesn't have enough money or equipment. A common issue is that there's no good, complete record-keeping for these areas. Another area, the Malvan Marine Wildlife Sanctuary, was also reviewed and didn't do well. It has problems with management, pollution from too much tourism and household waste, and hasn't solved issues with the local people's rights and benefits. A separate report from 2018 says many protected areas in the Andaman and Nicobar Islands have similar problems, especially with not enough public services and staff. The E- EAFM Training Course was conducted for 5 days at CMFRI, Kochi (August 30 – September 3, 2016) and was attended by 24 participants, including 16 scientists from CMFRI and two participants each from Bangladesh, India, Maldives and Sri Lanka. The E-EAFM training focussed on the development of professional planning, analytical and interpersonal skills needed for better structured management processes as well as more informed decision-making. In the training course, the participants prepared EAFM management plans in four thematic areas, namely, (i) Management of highly migratory stocks, (ii) By-catch management, (iii) Climate change adaptation in fisheries sector, and (iv) Management of Marine Protected Areas. These skills will help the Trainees in improved preparation and implementation of fisheries management plans that are more ecologically sound and account for human needs while promoting good governance. Training Programme on Essential Ecosystem Approach to Fisheries Management (EAFM): Developing Capacity in the EAFM, was conducted by Bay of Bengal Large Marine Ecosystem Project (BOBLME)

	on 11-16 August 2014, Chennai, India.The training program was designed to address the capacity development needs of South Asian countries, including India, and provided practical skills, tools, and resources. The program explains the rationale behind EAFM as the preferred approach to sustainably manage fisheries and outlines how EAFM works through the development, implementation, and adaptation of management plans. India is actively pursuing the implementation of Marine Spatial Planning (MSP) as a key element in its policy framework for the Blue Economy. The Ministry of Earth Sciences (MoES) is finalizing the National Policy on Blue Economy, which aims at the optimal utilization of maritime resources for sustainable development. This policy covers various sectors including marine fisheries, aquaculture, fish processing, tourism, and ocean energy. The establishment of the National Blue Economy Advisory Council (BEAC) is proposed, encompassing representatives from relevant ministries and coastal states, along with industry representatives Furthermore, India has partnered with Norway to work on MSP in oceanic spaces, a part of the Indo-Norway Integrated Ocean Initiative. Pilot projects are being implemented in Lakshadweep and Puducherry, with the National Centre for Coastal Research (NCCR) developing a marine spatial planning framework. This initiative is supported by the World Bank and the United Nations Environment Programme (UNEP). From a broader perspective, the Government of India has implemented several initiatives for the conservation and sustainable management of marine resources. For instance, the Centre for Marine Living Resources and Ecology (CMLRE) is actively involved in developing management strategies for marine living resources through ecosystem monitoring and modeling activities. They have also launched a national R&D program on Marine Living Resources with a focus on enhancing ornamental and baitfish stocks in the wild, particularly for the fisherfolk of Lakshadweep Islands. A new World Bank program has been initiated to enhance Integrated Coastal Zone Management in India. This program aims to protect coastal populations from environmental hazards, improve coastal resources, and enhance livelihood opportunities for coastal communities. India-Norway Collaboration: India and Norway have agreed to conduct marine spatial

	planning in Lakshadweep and Puducherry as part of the Indo-Norway Integrated Ocean Initiative. This collaboration will focus on ensuring that human activities at sea, including energy, transportation, fisheries, aquaculture, and tourism, are conducted in an efficient, safe, and sustainable manner. The Ministry of Earth Sciences (MoES) through the National Centre for Coastal Research (NCCR) is implementing this initiative in India. Marine Gazetteer Information: The Flanders Marine Institute provides detailed information on India's Exclusive Economic Zone (EEZ), offering resources such as the Maritime Boundaries Geodatabase. This database includes comprehensive data about maritime boundaries and EEZs, contributing significantly to the mapping and understanding of India's marine regions. The Indian government outlines the extent, regulations, and management strategies for these ESZs. These might include restrictions on various activities like industrial operations, construction, and other forms of development that could harm the ecological balance of the area. The notification likely details specific guidelines and rules to ensure the conservation and protection of these sensitive ecological regions.
International cooperation (Control/Surveillance)	Regional Fisheries Management Organizations (RFMOs) play a crucial role in managing fisheries conflicts. These organizations vary in effectiveness, influenced by factors like member-state composition, funding, and scientific capacity. RFMOs are essential in pacifying relations between states, providing arenas for resource management, and potentially resolving disputes. However, their capacity to address militarized types of fisheries conflicts, involving navies, coast guards, and private vessels, is often limited. The Indo-Norwegian collaboration began with a tripartite agreement in 1953 between India, Norway, and the United Nations. This led to the formation of the Indo-Norwegian fisheries project in Neendakara, Kerala. The project focused on improving fisheries and supporting the local fishing community through technical expertise in various areas such as mechanized fishing and

	handling of bulk fish landings. More recently, India and Norway have agreed to work jointly on marine spatial planning (MSP) for the next five years, as part of the Indo-Norway Integrated Ocean Initiative under the MoU signed in 2019. MSP is recognized as a tool for sustainable and integrated ocean management. Lakshadweep and Puducherry have been chosen as pilot sites for this initiative. An MoU between the Directorate for Shipping in India and the Norwegian University of Science and Technology was signed to promote research, innovation, and training in maritime fields. This collaboration emphasizes sustainable marine development, blue economy, maritime technologies, and knowledge sharing.
Licensing procedures (Control)	The ReALCraft (Registration And Licensing of Fishing Craft) system is a web-enabled application developed by the Government of India's Department of Fisheries to facilitate the online registration and licensing of fishing vessels operating along the Indian coast. The application allows vessel owners to apply for a license from any location and complete the required process online, including e-payment. However, the applicant must visit the office for biometric data capture and document verification. Once these processes are completed, the Registration Certificate (RC) and License Certificate (LC) will be issued. ReALCraft offers several features and services: Centralized hosting at the National Data Centre and a Disaster Recovery Site in Bhubaneswar. Integration with state-specific payment gateways, security agencies for vessel tracking, insurance agencies, subsidy schemes, and Aadhaar for authentication. Comprehensive dashboard and data analytics capabilities. Fishermen-centric solutions and advanced search functionalities. The system's objectives include developing a modern, comprehensive, and transparent vessel data management system in the country, aiming to enhance security features and bring efficiency, transparency, accountability, and reliability in services. Services provided by ReALCraft include:

	Online submission of vessel registration. License issuance and renewal. Mobile application for department officials for field level verification. Services affecting and not affecting the dimension of the vessel, such as transfer of ownership, hypothecation addition/termination, alteration of vessel dimension, conversion of vessel, etc. e-Payment facilities. Permits and allied services on permits. Catch details by integrating with SAGARA. Solutions for security agencies. ReALCraft also offers different types of licenses, including commercial and recreational fishing licenses, as well as specialized licenses for activities like aquaculture and research.
Regional cooperation (COntrol/Surveillance)	The document "Report of the National Workshop on Monitoring, Control and Surveillance in Marine Fisheries" discusses the role of the Department of Fisheries (DoF) and the Indian Coast Guard (ICG) in Monitoring, Control, and Surveillance (MCS) activities. It was suggested that fishing vessels be marked with Radio identification frequency and that the DoF should exercise greater control over the small-scale fishing sector in territorial waters. The Ministry of Agriculture was also considering the use of Vessel Monitoring Systems (VMS) on all categories of fishing vessels and proposing a new bill for regulating fishing by Indian vessels in the Exclusive Economic Zone (EEZ). Commandant Paramesh from the ICG highlighted that existing fisheries and other relevant institutions contribute towards the implementation of MCS in the country. The Zonal Bases of the Fishery Survey of India regularly conduct workshops in different coastal States to discuss MCS. It was also noted that empowering the DoF is essential for the successful implementation of MCS activities. A Rajya Sabha unstarred question about the security of western coasts of India. It outlines various measures taken by the government to strengthen coastal security, such as establishing coastal police stations, implementing the Coastal Security Scheme, mandating registration of

	fishing vessels, setting up surveillance systems, establishing joint operation centers, demarcating coastal police station areas, mapping vital details, etc.
Compliance checks (Control)	The Indian Register of Shipping (IRClass) provides a comprehensive checklist for the annual survey of various types of vessels, including fishing boats. This checklist is an essential tool for ensuring that the vessels meet the necessary safety and operational standards. It includes inspections of structural integrity, machinery, safety equipment, and other critical components. India has several historic regulations and laws, such as the British Era Fisheries Act, Environment Protection Act of 1986, Water Prevention and Control of Pollution Act of 1974, and the Wildlife Protection Act of 1972. These acts collectively aim to protect the environment, prevent hazards to human beings, control pollution, and conserve wildlife, including marine wildlife. The Union government had issued draft guidelines in 2022 for regulating fishing by Indian-flagged vessels in high seas. These guidelines are essential for the regulation of marine fisheries, particularly to avoid over-exploitation and to ensure sustainable use of resources. The guidelines include provisions for obtaining valid permits for deep-sea fishing, with specific fees based on the size of the vessel. The Union Ministry of Agriculture and Fisheries is the licensing authority, and these permits are valid for two years. In 2022, the Union government issued draft guidelines to regulate fishing activities by Indian vessels in international waters beyond India's 200 nautical mile Exclusive Economic Zone (EEZ). These guidelines require individuals engaging in high-seas fishing to obtain valid permits from the Union Ministry of Agriculture and Fisheries, with a permit validity of two years. This measure is intended to prevent over-exploitation and ensure the sustainable use of marine resources. The government's efforts also involve regulating specific fishing operations in the high seas, such as purse seine, longline, and gillnet fishing operations, with prohibitions on certain practices to protect the marine ecosystem. These measures align with India's commitment to

	international fisheries management and conservation standards. The Directorate General of Shipping in India handles the registration of Indian fishing boats as per the Merchant Shipping Act of 1958. This includes the application for a certificate of registry, which requires a declaration of ownership, documents of title to the fishing boat, and the builder's certificate. The process also involves assigning an official number to the vessel and ensuring its name and number are appropriately painted on the vessel. The Directorate is responsible for implementing shipping policy and legislation, ensuring safety at sea, preventing marine pollution, promoting maritime education and training, and regulating the employment and welfare of seamen. This wing plays a critical role in overseeing the technical aspects of shipbuilding, including fishing vessels. It ensures that the vessels meet the necessary safety and operational standards. The state fisheries department of Maharashtra has asked the Coast Guard to take action against the use of LED lights for fishing in state territorial waters, specifically beyond 12 nautical miles and up to 200 nautical miles. This move came in response to the illegal use of LED lights for fishing, which not only affects the livelihood of traditional fishermen but also poses a threat to the marine environment. The government resolution passed in November 2017 prohibits the use of surface/submerged artificial lights like LEDs, purse-seining, and gill netting operations on mechanised fishing vessels or motorized fishing crafts in the EEZ. The Union Government has banned the use of LED lights for fishing in the Indian EEZ beyond territorial waters. The Indian Coast Guard has been advised by the Government of India to take necessary steps to enforce this ban. However, there have been reports of ongoing LED light fishing activities in the Konkan region of Maharashtra, particularly in the districts of Raigad, Ratnagiri, and Sindhudurg. This continued practice has led to significant loss of fish resources and adversely affected the livelihood of local traditional fishermen. Consequently, there have been calls for the Indian Coast Guard and the Maharashtra Government to take more effective and concrete steps to curb illegal LED light fishing and to impose strict penalties on offenders. In some regions, like Kerala, specific rules have been established concerning the size of the mesh used in trawling nets. For instance, the Kerala Marine Fishing Regulation (KMFR) Rules amendment specifies a mesh size of 35 mm for fish & cephalopods and 25 mm for shrimp.

	Such measures are aimed at preventing the catch of small fishes and juveniles, thereby protecting fish populations. In Kerala, there are ongoing efforts to address and curb destructive fishing practices along the coast. The state's Department of Fisheries has formulated new rules to control these practices, which include regulations on light fishing, a common method in the state. These rules are based on the Kerala Marine Fishing Regulation Act (KMFRA) 2017, which now includes clauses dealing with the use of dynamite, other explosive substances, poison, noxious chemicals, light, or other destructive materials to catch or destroy fish in the specified area. The use of dynamite and fish toxins like copper sulphate for fishing, as well as fish aggregating devices (FADs), will invite legal action. The Act aims to make such destructive fishing practices a culpable offence for the first time in Kerala. The new draft of KMFRA has also proposed a ban on pair trawling or bull trawling, recognizing t he devastating impact these practices have on fish wealth and the marine environment. Pair trawling is a modified practice in trawling where two or more vessels join to drag one large trawl net, leading to rapid depletion of resources and conflicts with seine fishermen. Additionally, mini trawling near the shore, which causes substantial destruction of juvenile fish, is targeted for prohibition. These initiatives are a response to the concerns raised by fishers and environmentalists about the decline in fish catch due to unscientific and harmful fishing methods. The new measures aim to protect juvenile fish and maintain spawning stocks by potentially implementing a minimum legal size for fish catches. The success of these measures, however, is contingent on effective enforcement .
Violation detections (Control)	To address these challenges, the Indian government has implemented various schemes and initiatives. The "Blue Revolution" scheme, launched in 2015, aimed at achieving economic prosperity and contributing towards food and nutritional security through sustainable fisheries development. This scheme provided funds for environment-friendly aquaculture practices and

	technology, such as Recirculating Aquaculture Systems (RAS), which are water-efficient and have zero environmental impact. Other initiatives under this scheme include the promotion of Sea Cages for marine fish culture, seaweed cultivation, and implementing fish lean/ban periods during breeding seasons. Solar panels were also provided for fisheries-related activities. In India, there has been a significant focus on preventing destructive fishing practices and promoting sustainable methods in the marine fisheries sector. The use of bottom trawling nets, which destroy reefs and other natural marine habitats, has been a major concern. These practices have not only led to environmental degradation but also resulted in substantial bycatch, which is harmful to the ocean's food web and the livelihoods of coastal communities. Some villages in Tamil Nadu have taken steps to ban bottom trawling and adopt measures like nets with wider mesh, combining traditional knowledge with modern techniques to promote sustainable fishing. A study evaluating the compliance of the bag net fishery in Maharashtra with the provisions of the Code of Conduct for Responsible Fisheries (CCRF) highlighted the need for stricter enforcement of mesh size regulations and the revision of existing MFRAs to ensure sustainability. Significant steps taken in Kerala to conserve marine wealth, including the gazette notification banning the capture of juvenile fish belonging to 44 more species, is detailed in an article by The New Indian Express. This initiative was in response to recommendations from the Central Marine Fisheries Research Institute (CMFRI) and covers popular fish varieties such as sardine, mackerel, tuna, and pomfret. Following this measure, the total number of species restricted with minimum legal sizes (MLS) increased to 58. The main goal of this ban is to counteract the decline in fish catch and to encourage sustainable fishing practices. The Kerala government has implemented a three-tier system of Fisheries Management Councils as part of the Kerala Marine Fisheries Regulation Act (KMFRA), a significant move for sustainable fishing and marine resource management in the region. This structure comprises the Fishing Village Management Council, the District Fisheries Management

	Council, and the State Fisheries Management Council. The Fisheries Management Councils are participatory in nature, including various stakeholders such as fishermen, government officers, boat owners, boat builders, fish traders, NGOs, and scientists. This inclusive approach aims to facilitate dialogues and discussions for sustainable fishing, ensuring that the needs and perspectives of different stakeholders are considered in decision-making processes. A key focus of these councils is the regulation of fishing practices and the conservation of marine resources. The implementation of this system marks a crucial step towards balancing the rights and responsibilities of fishermen and other stakeholders, promoting a more equitable and efficient management of fisheries and coastal resources.
Implementation measures (Control)	The Seasonal Fishing Ban (SFB) is one such measure aimed at sustainable harvesting and conservation of fish resources. In India, the closed season now follows a uniform period: from June 15 to July 31 on the West Coast and from April 15 to May 31 on the Eastern Coast. This uniformity aims to address issues that arose from previously non-uniform ban periods. The Wildlife Institute of India, under the Indo-German Project, was working on capacity building in coastal and marine protected areas. This includes the development of guidelines for effective management of these areas, integrating global best practices with local conditions. The project also focuses on strategic environmental assessment and management effectiveness evaluation. It aims to improve understanding and management of coastal and marine areas while considering livelihood needs and conservation. Organizations such as Terra Conscious, the Society for Marine Research and Conservation (SMRC), and Coastal Impact are actively involved in marine conservation efforts in India. These organizations focus on promoting responsible tourism, conducting ethical wildlife

	watching trips, monitoring migratory sea birds, campaigning against juvenile fishing, and conducting underwater cleanup drives. These initiatives demonstrate the active role of community-based organizations in environmental monitoring and conservation efforts.
Observer programs (Surveillance)	The Indian government, through collaboration between the Indian Navy (IN), the Indian Space Research Organisation (ISRO), the Ministry of Home Affairs (MHA), and the Department of Animal Husbandry and Fisheries (DADF)/State Fisheries Departments, has been actively working on enhancing maritime security and surveillance, especially in the fisheries sector. One notable initiative is the implementation of GSAT-6 satellite-based tracking transponders, which was piloted in 2019. This system equipped around 500 boats in Gujarat, 500 in Tamil Nadu, and 50 in Puducherry to aid in tracking and identifying fishing vessels, particularly those less than 20 meters in length, which form a significant portion of the fishing fleet. ISRO and Indian Navy did a proof-of-concept trial, and later ISRO commissioned a project to conduct field trials of the indigenous Vessel Tracking System (VTS) based on NavIC (Navigation with Indian Constellation). Over 1000 fishing vessels in Tamil Nadu, Gujarat and Puducherry were equipped with VTS and on successful completion of field trials, a report was submitted in 2019 for further action. To establish better communication with vessels in sea and monitor Indian waters more efficiently, NewSpace India Ltd, the commercial arm of the Indian Space Research Organisation (Isro), is setting up mobile satellite service (MSS) terminals on at least one lakh motorised and fishing boats across 13 coastal states. The France-based French National Space Agency (CNES) and the Indian Space Research Organisation (ISRO) have collaborated to develop a maritime surveillance system, following an agreement signed by their respective leaders, Jean-Yves Le Gall and Sivan K. This partnership, initiated during French President Emmanuel Macron's 2018 visit to India, involves setting up a maritime surveillance center in India and focuses on detecting, identifying, and tracking ships in the Indian Ocean. Future plans include creating an orbital infrastructure jointly operated by both countries. This cooperation extends to various space endeavors, including

	human spaceflight, with ISRO experts receiving training in France, and collaborative projects on climate monitoring and reusable space technologies. The program also incorporates the Megha-Tropiques and SARAL-AltiKa satellite missions, contributing to the Paris Agreement, with plans to expand with Oceansat-3-Argos and other missions. This partnership signifies a growing and strategic relationship in space technology between France and India. GEMINI, a groundbreaking handheld device, bridges the communication gap for about a million Indian fishermen, enhancing their safety at sea. This device, deriving data from the GAGAN system primarily used at airports, relays crucial information like storm warnings and fish shoal locations to fishermen's mobile phones. Developed through a collaboration between the Indian National Centre for Ocean Information Services and the Airport Authority of India, GEMINI utilizes satellites operated by ISRO. It offers significant advancements over limited-range mobile networks and radios, providing timely alerts and potential fishing zone locations. Priced comparably to a low-end smartphone, GEMINI's accessibility is further supported by the Department of Fisheries, aiming to distribute sets to fishermen. This initiative represents a major step in using space technology for enhancing the safety and livelihoods of fishermen across the Indian Ocean region. Satellite-based modern fishing techniques are being used in India. For instance, Global System for Mobile communication (GSM) smartphones with Vessel Monitoring System (VMS) transceivers are used to collect data from fishing vessels and transmit this data to satellite operators. This data is crucial for monitoring fishing activities and managing resources efficiently. Nighttime satellite images are also utilized to monitor fishing activities, especially for fisheries that use lights to attract fish. These images help in identifying illegal, unreported, and unregulated fishing activities. Electronic Display Boards (EDBs) for Fisheries Advisory Services in Maharashtra," outlines the role of EDBs in providing Potential Fishing Zone (PFZ) advisories to fishers in Maharashtra. The study, conducted by the Central Institute of Fisheries Education, Mumbai, highlights the use of EDBs in disseminating information about probable potential fishing zones, aiding fishers in their activities. It also discusses the integration of Indigenous Technical Knowledge (ITK) with modern technological tools to enhance the effectiveness of these advisories.

Training initiatives (MCS)	The Indian Coast Guard and Marine Coastal police have intensified patrolling to prevent fishermen from crossing the IMBL. This effort includes coordinated patrols with neighboring countries to sensitize fishermen about the boundary and prevent accidental crossing. This apex-level committee, headed by the Cabinet Secretary, coordinates all matters related to maritime and coastal security. It ensures inter-agency coordination among nearly 15 national and state agencies, which has significantly improved due to regular exercises conducted by the Navy. Handbook on fisheries statistics 2022 Table 10.1 1. Vessel Navigator Course (NCVT): This is a 2-year course designed to train individuals in navigating vessels. 2. Marine Fitter Course (NCVT): Also a 2-year course, it focuses on fitting operations related to marine machinery and equipment. 3. Shore Mechanic Course: Lasting for 1 year, this course trains individuals to handle mechanical work onshore, likely related to the maritime industry. 4. Elementary Fishing Technology Course (Statutory course): This course lasts 2 months and covers the basics of fishing technology. 5. Advanced Fishing technology Course (Statutory course): A short course of 2 weeks, offering advanced knowledge in fishing technology. 6. Fishing technology for Coast guard officers: An intensive 1-week program designed specifically for Coast Guard officers. 7. Teachers training course: A 6-month course aimed at training teachers, likely in the subjects of fisheries and maritime sciences. 8. Advanced Diploma in Fishing Gear Technology Course: This is a 1-year course providing in-depth training in fishing gear technology.

	9. Short term courses on Fishery Technology, Marine Engineering, Refrigeration & Electronics, Nautical Science for fishermen, students of College and Vocational Higher secondary Each of these courses is affiliated with the National Council of Vocational Training (NCVT), indicating they follow a standardized curriculum that is recognized nationally for vocational training. The courses aim to equip students with the practical skills needed for various technical roles in the maritime and fisheries sectors. Table 10.2 The courses in the table are short-term training programs offered by CIFNET for skill development and awareness in the fisheries sector: 1. Basic of Seamanship, Navigation, Marine Electronic equipment & maintenance: A 5-day course providing fundamental skills in seamanship, navigation, and the operation and maintenance of marine electronic equipment. 2. Fishing vessel Communication and Vessel Monitoring System: This 2-day course focuses on communication protocols and vessel monitoring systems essential for the operation of a fishing vessel. 3. Navigation and Marine communication for coastal police: A 2-day training designed specifically for coastal police, covering navigation and marine communication essentials. 4. Power Distribution and Electrical Safety onboard Fishing Vessels: This course also runs for 2 days and is centered on the safe distribution of power and handling of electrical systems on fishing vessels. Table 10.3 The table details Training of Trainers (ToT) programs under the Pradhan Mantri Matsya Sampada

	Yojana (PMMSY), focusing on various aspects of fisheries, navigation, and safety. Here's a summary of the highlighted courses: 1. Boat Building, Navigation and Communication Equipments: A comprehensive 10-day course that covers the construction of boats, navigation techniques, and the use of communication equipment. 2. Fishing Technology Course: This 5-day course provides training in various fishing technologies, likely including gear types, fish finding, and harvesting methods. 3. Safety Seamanship & Navigation, Handling of Electronic Equipments: A 3-day course that teaches essential safety protocols for seamanship and navigation, along with the handling of onboard electronic equipment. 4. Sea Safety, Survey and Certification of Fishing Vessels: This course, lasting 3 days, focuses on the safety standards at sea, procedures for surveying fishing vessels, and their certification process. 5. Code of Conduct for Responsible Fishing (CCRF), Fishery Policy and Law: Over 3 days, this course covers the ethical guidelines for responsible fishing, along with relevant fishery policies and laws. These ToT programs are designed to equip trainers with specialized knowledge in their respective fields, ensuring they can effectively pass on the skills and practices to others in the industry. The Central Institute of Fisheries Nautical and Engineering Training during 2020-21 for various

	courses: 1. Vessel Navigator Course: Trained 376 candidates, with 112 continuing the course. 2. Marine Fitter Course: 453 individuals were trained, with 111 continuing. 3. Short term Training Course: A broad range of training varying from 1 day to 8 weeks for skill development in different disciplines trained 11,097 candidates. 4. Skill Development program for Fishermen & Fishery Officials (TOT): Sponsored by various State and funded by NFDB (National Fisheries Development Board), the program trained 182 candidates. 5. Short term Training for Fishermen/Fishery Officials: Sponsored by various States (2014 onwards), 2,579 individuals were trained. 6. LOP crews on Deep sea fishing & Navigation: 14 candidates were trained in the course. 7. Advanced Diploma in Fishing Gear Technology Course: Had 26 candidates trained during the period. 8. Post-institutional Training (Junior Deckhand, Engine Room Assistant, Apprentice Fitter): Saw 2013 candidates trained and 21 continuing. fishery survey of India (FSI) 3. g. Remote Sensing and Fishery Forecasting in collaboration with SAC and ISRO has engaged in the development of resource specific fishery forecast models using Ocean Satellite derived data on ocean colour (Chlorophyll) and Sea Surface Temperature (SST).

	2.24 Steps will be taken to provide skill training to staff of mechanized vessels in collaboration with National/State level institutions and Universities. In the case of mechanised vessels license will be given to only those vessels for fishing which are manned by trained srank/skipper and engine driver. Under the PMMSY, there are measures aimed at enhancing fish production and providing support to those involved in the fishing industry. This includes insurance coverage for fishers, which encompasses fish workers, fish farmers, and other related personnel, providing substantial coverage against accidents, permanent disabilities, and hospitalization expenses A significant initiative for maritime security is 'Operation Sajag,' conducted by the Indian Coast Guard along the west coast. This drill, which involves various stakeholders in coastal security, is focused on revalidating the coastal security mechanism and raising awareness among fishermen at sea. During these drills, extensive checking and verification of documents and crew passes of all fishing boats, barges, and craft at sea are conducted. This also includes the issuance of biometric cards for fishermen, color-coding of fishing boats by state, staffing of fish landing centers, and access control at entry/exit checkpoints. Furthermore, there is a focus on coastal mapping, designating specific marine band frequencies for security agencies, and training of marine police personnel by the Indian Coast Guard. Additionally, the evolution of coastal security in India has included the development of the Customs Marine Organisation (CMO) and the establishment of the Indian Coast Guard. The Coast Guard, which came into being as the fourth armed force of India in August 1978, plays a critical role in safeguarding India's maritime interests and enforcing maritime law within its territorial waters, including its contiguous zone and exclusive economic zone.
Budget (MCS)	Centrally Sponsored Scheme (CSS) – ‘Blue Revolution: Integrated Development and Management of Fisheries’: Launched in 2015-16 with an outlay of Rs 3000 crores for a period of 5 years, this scheme aims to sustainably harness the potential of the fisheries sector. Pradhan Mantri Matsya Sampada Yojana (PMMSY): Launched in May 2020, with an investment

	of Rs. 20,050 crore for a period of five years (2020-21 to 2024-25), this flagship scheme targets sustainable and responsible development of the fisheries sector across all States and UTs. Established in 2018-19 with a fund size of Rs. 7522.48 crores, the FIDF provides concessional finance to State/UT Governments, their entities, and the private sector for developing fisheries infrastructure. This includes projects such as fishing harbours, fish landing centres, ice plants, cold storage, fish transport facilities, and fish processing units. Handbook Fisheries Statistics, 2022-23 Table 8.4 1. **Blue Revolution: Integrated Development and Management of Fisheries** had a budget estimate (BE) of 560 crores, a revised estimate (RE) of 700 crores, and an actual expenditure (EXP) of 699.72 crores. 2. **National Fisheries Development Board (NFDB)** had a BE of 77.5 crores, an RE of 32.28 crores, and an EXP of 32.25 crores. 3. **Fisheries and Infrastructure Development Fund (FIDF)** had a BE of 10 crores, an RE of 10 crores, and an EXP of 9.5 crores. The subtotal for these top three categories was 741.47 crores. The detailed expenditure for other institutions and schemes were as follows: 4. **Fisheries Survey of India (FSI)** had an expenditure of 72.7 crores. 5. **Central Institute of Fisheries Nautical and Engineering Training (CIFNET)** had an expenditure of 30.55 crores. 6. **National Institute of Fisheries Post Harvest Technology and Training (NIFPHATT)** had an expenditure of 10.02 crores. 7. **Central Institute of Coastal Engineering for Fishery (CICEF)** had an expenditure of 3.8 crores. The subtotal for these institutions (FSI, CIFNET, NIFPHATT, CICEF) was 117.07 crores.

	Additional expenditures were listed as: 8. **Directorate of Aquatic Animal Health & Quarantine (DAAHQ)** with an expenditure of 4 crores. 9. **Coastal Aquaculture Authority (CAA)** with an expenditure of 3 crores. There was no expenditure listed for the scheme "Package for replacement of Fishing vessels seized by Pakistan". 11. **Secretariate Economic Services** had an expenditure of 18.28 crores. - Under the Blue Revolution scheme from 2015-16 to 2019-20, Kerala received a total of 23,274.38 lakhs. - For the fiscal year 2020-21, under the Pradhan Mantri Matsya Sampada Yojana (PMMSY), Kerala received 800.00 lakhs. - In 2021-22, the amount increased significantly to 7,810.95 lakhs under PMMSY. - The combined total funds released to Kerala for the fisheries sector across the Blue Revolution and PMMSY schemes from 2015-16 to 2021-22 amounted to 31,885.33 lakhs. Table 8.5 (B) For the fiscal year 2019-20 in Kerala: - The state share of funds released was 3,517.80 lakhs. - The central share of funds released was 9,357.15 lakhs. - The total funds released for the development of the fisheries sector was 12,874.95 lakhs. For the fiscal year 2020-21 in Kerala: - The state share of funds released was 3,691.30 lakhs. - The central share of funds released was 4,204.44 lakhs. - The total funds released for the development of the fisheries sector was 7,895.74 lakhs. This indicates that the government's investment in Kerala's fisheries sector was substantial, with the total fund released over two years amounting to 20,770.69 lakhs. The central

	government's contribution was notably higher in 2019-20, while the state government's contribution increased in 2020-21.

S2. Policy Excerpts

Table 1 presents the policy excerpts collected from various regulatory documents within the Indian national marine fisheries framework.

Table 1: Collection of policy excerpts sourced from various regulatory documents, organised under specific subcodes to group related policies.

Subcode (theme)	Regulatory document (Policy excerpt)
Data collection methods (Monitoring)	National Fisheries Policy, 2020 6.1.1 Knowledge management will be an approach to foster quick and easy dissemination and availability of information on key attributes of the marine fisheries sector, such as resource abundance and distribution; real-time resource maps; productivity assessments; real-time Potential Fishing Zone (PFZ) advisories; and weather forecasts for the benefit of fishers. 6.8.4 Developing a national-level platform to oversee the process and provide necessary incentives to the agencies that would contribute to data collection, collation, and dissemination. THE INDIAN MARINE FISHERIES BILL, 2021 7. (1) The Central Government in the Department of Fisheries shall act as the National Repository of Information on Marine Fisheries. (2) The Central Government, in coordination with the State Governments and such organisations or agencies as it may deem necessary, shall– (i) collect all information and data relating to fisheries, fisheries resources, fish landings, fisheries infrastructure and socio-economic conditions of fishers; (ii) collate, process and disseminate the information referred to in clause (i).

	PRADHAN MANTRI MATSYA SAMPADA YOJANA, 2020 2.3 (iii) (c) Fisheries documentation and database of fishers both marine and inland will be taken up under PMMSY. Multipurpose support services in fisheries management will be created and supported under the scheme. Under PMMSY, coastal villages will be deployed with multipurpose workers „Sagar Mitras" for providing multiple support services to the marine fishermen, undertaking fish catch documentation, etc Annual report, 2022-23 Department of Fisheries Ministry of Fisheries, Animal Husbandry & Dairying Government of India 5.5.1 The mandate of the Fisheries research institute is tuned from time to time to match the developmental activities of the fisheries sector as well as to meet the national and global requirements. The mandate of the Institute is given below: (ii) Data collection and periodic re-validation of potential of fishery resources to provide advice on fishery management issues enshrined in the national, regional and global conventions and agreements and other associated activities. 3.1.2.1 (I) Fish data collection, fishers' survey and strengthening of fisheries database. The Kerala Marine Fishing Regulation Rules, 2018 7. Registration of fishing vessel. (1) Every application for the registration of a fishing vessel shall be in the form specified in the Merchant Shipping (Registration of Indian Fishing Boats) Rules, 1988 and shall be accompanied by a fee specified for each category of fishing vessel in column (1) of the Table below corresponding to the entries in column (2).
Tracking methods (Monitoring)	National Fisheries Policy, 2020 6.1.1 The use of Information Technology (IT) and Space Technology (ST) will be put to optimum use for harnessing the benefits in

	support of the fisher community. National Marine Fishery Policy, 2017 19.0 In addition, MCS functions will also be strengthened by the mandatory use of log books, movement tokens, colour coding of fishing vessels, biometric cards to fishers for their identity and also space technologies and IT tools (e.g. Vessel Monitoring System/Automatic Identification System). PRADHAN MANTRI MATSYA SAMPADA YOJANA, 2020 10.1 (ii) Beneficiaries of traditional fishing vessels will be supported for fitment of one-unit of appropriate communication/tracking device based on the recommendations of the concerned States/UTs. (iii) Within the prescribed unit cost, beneficiaries of motorised fishing vessels will supported for fitment of a maximum of two devices comprising of a) DAT and b) appropriate communication and/or tracking device based on the recommendations of the concerned States/UTs. In case, a device serves multiple purposes such as distress alert, two-way communication, tracking etc. the States/UTs may recommend such multipurpose device having these features for fitment onboard the motorized fishing vessels within the prescribed unit costs. (iv) Fitment and operation of a particular type of communication concerned authorities. The concerned States/UTs should ascertain and confirm this while recommending a particular device and/or tracking device onboard the fishing vessel is subject to necessary clearances from concerned authorities. The concerned States/UTs should ascertain and confirm this while recommending a particular device. (v) The Beneficiaries will abide by the relevant regulation in operation and guidelines issued by the Government for effective operation of the devise nstalled in his/he fishing vessels. 25.2 A comprehensive Information Communication Technology (ICT) based

	Management Information System (MIS) will be put in place for regular monitoring of the physical and financial progress and deliverables under the PMMSY. INDIA'S BLUE ECONOMY: A DRAFT POLICY FRAMEWORK, 2020 3.17 Strengthen Monitoring Control and Surveillance such as the Vessel Monitoring System (VMS)to track the movement of fishing vessels in order to know where and when the fish are caught, how, and by whom. Undertake patrolling in high seas and Areas Beyond National Jurisdiction (ABNJ). Prevent significant adverse impacts on Vulnerable Marine Ecosystems (VMEs) to achieve Potential Yield Estimates (PYE). National Fisheries Policy, 2020 6.1.2 India being a party to several International Agreements/Arrangements to deter, prevent and eliminate Illegal, Unreported and Unregulated (IUU) fishing, the Government will establish a sound mechanism both at the port and at sea to ensure that the Indian fishing fleet does not engage in any IUU fishing within its own EEZ and the ABNJ. Annual report, 2022-23 Department of Fisheries Ministry of Fisheries, Animal Husbandry & Dairying Government of India 5.5.1 (vii) FSI is mandated for Marine Fisheries forecasting including application of Remote Sensing for the benefit of Artisanal, Mechanized and Industrial sectors. Kerala state marine fishery policy, 2019 2.21 As per the recommendations of the Intemational Maritime Organisation regarding. Safety of Life at Sea (SOLAS)', surveillance and monitoring systems that assist to locate fishing vessels will be made mandatory for all mechanised fishing vessels. An ICT enabled system to record the departure and entry details of fishing vessels, as well as individual details of the crew will be established. In order to monitor and regulate routine activities related to fishing on a daily basis, a Master control Mechanism will be established at Vizhinjam, Kochi and Kozhikkode. Iceland MoU

	Technological advice and cooperation regarding the Vessel Monitoring System in the coastal and deep-sea fishing areas.
Stock assessments (Monitoring)	National Fisheries Policy, 2020 6.1.1 A capacity appraisal framework will be prepared for fishing capacity based on the PY estimates and regular stock assessments will be carried out to allow for the identified fish stocks to be harvested on a sustained basis. 6.1.2 Strengthening and improvements in MCS will be carried out in a phased manner by introducing chip-based smart registration cards, mandatory use of logbooks (both paper and electronic), and also through extensive use of space technologies and IT tools. 6.1.2 While updating the existing rules and regulations it would also be necessary to introduce mandatory registration of boat-building yards, registration of fishing gear to ensure its accountability and reducing the loss of gear/ghost fishing, seaworthiness of fishing vessels, and phasing out of ageing and unviable fishing vessels. Comprehensive Marine Fishing Policy, 2004 Assessment of existing fishing capacity and plans for regulating or developing one or the other sectors of EEZ would be taken up. INDIA'S BLUE ECONOMY: A DRAFT POLICY FRAMEWORK, 2020 3.17 Ensure mandatory data input availability from primary stakeholders (fishermen) via log sheets; integration of marine resource survey data and commercial landings data Assess commercially valuable stocks by a body designated by Department of Fisheries (DoF). Annual report, 2022-23 Department of Fisheries Ministry of Fisheries, Animal Husbandry & Dairying

	Government of India 5.5.1 The mandate of the Fisheries research institute is tuned from time to time to match the developmental activities of the fisheries sector as well as to meet the national and global requirements. The mandate of the Institute is given below: (i) Exploratory surveys, charting of fishing grounds, assessment of fish stocks in the Indian EEZ and adjoining high seas and research thereof besides the specific surveys on request from the States/UTs. 9. Registration of Vessels.— (1) The owner of every vessel used or intended to be used for purposes of fishing and kept in the state, not being a fishing vessel registered under section 11 of the Marine Products Export Development Authority Act, 1972 (Central Act 13 of 1972), shall register such vessel under this Act. (2) Every application for registration of such vessel shall be made by the owner thereof to the authorized officer in such form, and shall be accompanied by such fees, as may be prescribed – (a) before the expiration of one month from the date on which he first became the owner of such vessel; or (b) before the expiration of three months from the commencement of this Act. Which ever is later; Provided that the authorized officer may, for sufficient reason to be recorded in writing, extend the time-limit for registration by such period as he thinks fit. The Kerala Marine Fishing Regulation Rules, 2018 Category of fishing vessel based on LOA -(1) -Amount of fee (₹) (2) - Below 5 Meter -100 - 5 – 9.99 Meter -300 - 10 – 14.99 Meter -2,500 - 15 – 19.99 Meter -10,000 - 20 – 24.99 Meter -25,000 - 25 Meter and above -50,000 (2) On receipt of an application under sub-rule (1), the authorized officer shall, after making such

	enquiry as he deems fit, register the fishing vessel or refuse such registration by an order. Such registration or refusal, as the case may be, shall be made within a period of one month from the date of receipt of application. (3) Where the application for registration is refused the reasons for such refusal shall be recorded in writing and a copy of the same along with the order of refusal shall be furnished to the applicant. (4) Where the application of registration is not refused, a certificate of registration shall be granted in the form specified in the Merchant Shipping (Registration of Indian Fishing Boats) Rules, 1988. (5) Every certificate of registration issued by the authorized officer shall be entered in a register kept by him in Form-1. (6) The registration mark assigned to a vessel by the authorized officer and its name shall be displayed on the top of both sides of fore and aft of the vessel. National Marine Fishery Policy, 2017 19.0 Strengthening and improvements in MCS will be carried out in a phased manner by introducing chip-based smart registration cards that would include data on registration, licensing, and other routine information on base port, voyages, etc. In addition, MCS functions will also be strengthened by the mandatory use of log books, movement tokens, colour coding of fishing vessels, biometric cards to fishers for their identity and also space technologies and IT tools (e.g. Vessel Monitoring System/Automatic Identification System). Bangladesh MoU A Joint Working Group (JWG) shall be formed to provide guidance, review the progress of activities and to facilitate co-operation under this Memorandum.Such joint activities should be environmentally sound

	and sustainable and may include the areas of aquaculture germplasm exchange, training in fish stock assessment, and Hilsa fisheries management.
Marine spatial planning (Control)	National Fisheries Policy, 2020 6.1.1 The Government will also undertake the review and periodic evaluation of the existing Marine Protected Areas (MPAs) and for providing legislative support to ensure that tenure rights of the traditional fishers are secured and their livelihoods are not impacted by such conservation measures. Efforts will be made towards mainstreaming biodiversity conservation in production processes; species-specific and zonal/area-specific management plans, including conservation of Ecologically and Biologically Significant Areas (EBSAs) and Vulnerable Marine Ecosystems (VMEs); protection of iconic and endangered and threatened (ETP) species; spatial and temporal measures for sustainable utilization of resources; and creation of fish refugia through consultative processes. 6.1.1 The Ecosystem Approach to Fisheries Management (EAFM) will be implemented with due consideration of the well-being of all living and non-living constituents of the marine ecosystem and the social attributes and economic needs of the stakeholders. In the same vein, participatory management or co-management, which is recognized globally as one of the successful management systems for multi-stakeholder, multi-species and multi-fleet fisheries will be promoted. 6.6.5 However, keeping in view of the competing demands for ocean space, the need for Marine Spatial Planning (MSP), which is an important tool for the implementation of the Blue Economy, assumes significance. With the growing demand for mineral and oil exploration/extraction from the seas, the increasing volumes of maritime commercial traffic and reservation of spaces for strategic

	defence purposes, the available space for fisheries is diminishing. Keeping these contemporary developmentsin view,the policy will emphasise on a sound MSP to ensure that all economic activities get their due space and inthe process, conflicts are reduced. Where required, necessary research support would also be solicited from the Research Institutions. National Marine Fishery Policy, 2017 8.0 To realize the full potential of marine fisheries, focus will be directed towards fishing effort management; fleet-size optimization; mainstreaming biodiversity conservation in production processes; species-specific and area-specific management plans, including conservation of Ecologically and Biologically Significant Areas (EBSAs) and Vulnerable Marine Ecosystems (VMEs); protection of iconic and endangered and threatened (ETP) species; spatial and temporal measures for sustainable utilization of resources; and creation of fish refugia through consultative processes. Simultaneously, the Government will also undertake review and periodic evaluation of the existing marine protected areas (MPAs) and for providing legislative support to ensure that tenure rights of the traditional fishermen are secured and their livelihoods not impacted by such conservation measures. Comprehensive Marine Fishing Policy, 2004 6.4 The Coastal Regulation Zone notification would review the present zonation of areaskeeping in view the topography of each region and ensure that any human activity in the high tide limit (HTL) which may cause degradation of the coastal environment would not be permitted. 2.2 There would be exclusive area in terms of depth and (or) distance earmarked for non-mechanised (non-motorised) traditional craft. An area beyond this would be demarcated for mechanised and motorised craft.

	Coastal zone regulation act, 2019 Classification of CRZ Critically Vulnerable Coastal Areas Biologically active mudflats INDIA'S BLUE ECONOMY A DRAFT POLICY FRAMEWORK, 2020 3.10 Mapping of ocean resources is needed to develop a functional CMSP. India has made considerable progress in terms of mapping its coastal regions and EEZ. This sub group emphasized that all existing data and mapping policies should be streamlined and dovetailed with CMSP requirements under the suggested national level authority, covering the relevant coastal areas, offshore areas and the EEZ and Continental Shelf. Therefore, formulation of a new National Map and Data Policy was recommended balancing emerging requirements of data security and transparency. 4.12 Scientific and accurate mapping of India's coastal zones will lead to integrated coastal and marine Spatial plans. India would adopt and adapt the UNESCO-IOC guide. An Expert Group would be constituted to suggest modifications required for our national and local needs. This would require close coordination between the Ministries of Earth Sciences and Environment, Forests & Climate Change and other related departments/institutions. The CMSP would form the basis for the future development of the Blue Economy in India's EEZ including India's islands territories and in terms of planning ecotourism in island areas and increasing the number of Blue Flag beaches . Since CMSP is based upon availability of data to a wider user base, a new National Map and Data Policy will be formulated balancing the interests of data security, transparency and accessibility. THE MARINE FISHERIES (REGULATION AND MANAGEMENT) BILL, 2019 20 (2) (j) declaration of 'no fishing zone(s)' by the Central Government as per sub-section (1) (b) of section 5; 20 (2) (e) formulation of fisheries management plan(s) following the Code of Conduct for Responsible Fisheries and Ecosystem Approach to Fisheries Management under

	sub-section (3) of section 4; 4. (1) The Central Government may, from time to time, after consultation, notify one or more plans for management of one or more fisheries or fishing related activities in such area(s) of the maritime zones of India as may be prescribed. Provided that if a fisheries management plan is being made in relation to any area within the territorial waters of India, then such plan shall be formulated by the Central Government in consultation with the Government of the State or Union Territory under whose jurisdiction the relevant area of the territorial waters falls. (2) All permits granted under this Act, shall be subject to fisheries management plan(s) as may be notified by the Central Government and in the event of any inconsistency between a permit so granted and a fisheries management plan, all such permits shall be deemed amended in consonance with such fisheries management plan. (3) Fisheries management plan(s) shall follow the Code of Conduct for Responsible Fisheries and the Ecosystem Approach to Fisheries Management and other relevant instruments as may be prescribed. (4) Fisheries management plan(s) will ensure protection of endangered, threatened and protected species as prescribed. (5) Fisheries management plan(s) will ensure that the ecological integrity of the maritime zones of India, including prevention, control and mitigation of any form of pollution arising through fishing and fishing related activities is maintained. (6) Fisheries management plan(s) shall also ensure that they are consistent with the implementation of international or regional conventions/obligations/ agreements/ arrangements for fisheries and fishing related activities to which India is a signatory. (7) Any other matter which the Central Government may determine to be relevant for achieving any of the objectives of regulation and management of marine fisheries under this Act. NATIONAL ENVIRONMENT POLICY 2004 5.1.3 (iii) a) Revisit the Coastal Regulation Zone (CRZ) notifications to make the approach to coastal environmental regulation more holistic, and thereby ensure protection to coastal ecological systems, coastal waters, and the vulnerability of

	some coastal areas to potential sea level rise. The Integrated Coastal Zone Management (ICZM) Plans need to be comprehensive, and prepared on scientific basis, with the participation of the local communities both in formulation and implementation. The ICZM Plans should be reviewed at pre-determined intervals to take account of changes in geomorphology, economies, and settlement patterns. 5.1.3 (iv) Environmentally Sensitive Zones may be defined as areas with identified environmental resources with “Incomparable Values” which require special attention for their conservation. In order to conserve and enhance these resources, without impeding legitimate socio-economic development of these areas, the following actions will be taken: a) Identify and give legal status to Environmentally Sensitive Zones in the country with environmental entities with “Incomparable values” requiring special conservation efforts. b) Formulate area development plans for these zones on a scientific basis, with adequate participation by the local communi THE TERRITORIAL WATERS, CONTINENTAL SHELF, EXCLUSIVE ECONOMIC ZONE AND OTHER MARITIME ZONES ACT, 1976 (5) The Central Government may, by notification in the Official Gazette,- (a) declare any area of the continental shelf and its superjacent waters to be a designated area; and (b) make such provisions as it may deem necessary with respect to,— (i) the exploration, exploitation and protection of the resources of the continental shelf within such designated area; or (ii) the safety and protection of artificial islands, off-shore terminals, installations and other structures and devices in such designated area; or (iii) the protection of marine environment of such designated area; or (iv) customs and other fiscal matters in relation to such designated area. 7. Exclusive economic zone.—(1) The exclusive economic zone of India (hereinafter referred to as the exclusive economic zone) is an area beyond and adjacent to the territorial waters, and the limit of such zone is two hundred nautical miles from the baseline referred to in sub-section (2) of section 3.

	THE INDIAN MARINE FISHERIES BILL, 2021 6 (3) (ii) for the purposes of holistic and sustainable development of fisheries resources, and after consultation with the State Governments, specify by notification, the measures, based on the FAO Code of Conduct for Responsible Fisheries, adoption of the Ecosystem Approach to Fisheries Management and Co-management and the precautionary approach wherever required. PRADHAN MANTRI MATSYA SAMPADA YOJANA, 2020 2.3 (iii) (a) Under PMMSY it is intended to provide need-based support to states/UTs for formulation and implementation of fisheries management plans in lines with the requirements of Code of Conduct for Responsible Fisheries (CCRF), FAO"s Guidelines on small scale fisheries, Sustainable Development Goals (SDGs) and any other international voluntary and mandatory guidelines/codes and instruments.
International cooperation (control/Surveillance)	National Fisheries Policy, 2020 6.1.1 An institutional mechanism will be set up and strengthened to reduce and manage inter-State conflicts as well as international conflicts, especially with the neighbouring countries for the management of marine fisheries. 6.9.1 the Government will foster strong regional cooperation in the management and sustainable utilization of the resources, including conservation of species/stocks, wherever necessary. Further, cooperation in the field of marine fisheries through bilateral arrangements as also by participating in the regional fisheries and environment bodies will be enhanced. Such cooperation will facilitate managing shared resources and shared ecosystems; harmonization of policies and programmes aimed at optimized

	harvesting of trans-boundary resources;safeguard of human rights, in particular for fishers straying in waters of other countries. The policy will lay the guidelines for the fishers ensuring that who are willing to take employment in the fisheries sector in other countries have adequate skills and knowledge of working in alien seas and go through formal Government approvals. National Marine Fishery Policy, 2017 17.0 Institutional mechanism will be set up and strengthened to reduce and manage inter-State conflicts as well as international conflicts for management of marine fisheries. The Government will prepare and implement integrated coastal and Islands' fisheries development plans, which will help in enhancing the economy of coastal States/UTs and the Islands. Such plans will inter alia include framework for sustainable fisheries exploitation, coastal/Island tourism, availability of floating refueling barges, mother carrier vessels and mobile marine ambulances. Comprehensive Marine Fishing Policy, 2004 8.3 Endorsing international laws and conventions in the marine fisheries sector and harmonizing the national laws with the international ones wherever necessary with active participation in the regional fisheries management bodies and greater cooperation amongst countries in the region would be given due attention. INDIA'S BLUE ECONOMY: A DRAFT POLICY FRAMEWORK, 2020 3.11 International cooperation with global leaders in CMSP and Indian Ocean Rim Association (IORA) countries needs to be encouraged to adopt best practices and the transfer of technology. Iceland MoU Cooperation in fisheries management through appropriate institutional framework and by devising

	measures for the long-term conservation and sustainable use of fishery resources in the Exclusive Economic Zone with the objective to utilize them optimally. Creation of facilities for exchange of scientists and technical experts, especially in areas of estimating Total Allowable Catches (TAC) in offshore and deep sea areas and for determining the annual quota allocation for different species through different fishing methods/fishing vessels.
Licensing procedures (Control)	National Fisheries Policy, 2020 6.1.2 Presently, the Government has an online uniform registration and licensing system (ReALCraft) to register all fishing vessels operating in the marine sector (artisanal, motorized, mechanized and non-mechanized). National Marine Fishery Policy, 2017 19.0 Presently, the Government has an online uniform registration and licensing system (ReALCraft) to register all fishing vessels operating in the marine sector (traditional, motorized, mechanized and non-mechanized). THE INDIAN MARINE FISHERIES BILL, 2021 15. (1) On the expiry of one hundred and eighty days from the date of commencement of this Act, no Indian fishing vessels shall engage in fishing or fishing related activities in the exclusive economic zone and in the high seas without a valid licence issued under this Act. THE MARITIME ZONES OF INDIA (REGULATION OF FISHING BY FOREIGN VESSELS) ACT, 1981 4. (1) The owner of a foreign vessel or any other person [not being in either case any person to whom any of the descriptions specified in sub-items (1) to (3) of item (i) of sub-clause (II) of clause (e) of section 2 applies] who intends to use such vessel for fishing within any maritime zone of India, may make an application to the Central Government for the grant of a licence.

	(2) Every application under sub-section (1) shall be in such form and shall be accompanied by such fees as may be prescribed. (3) No licence shall be granted unless the Central Government, having regard to such matters as may be prescribed in the public interest in this behalf and after making such inquiry in respect of such other matters as may be relevant, is satisfied that the licence may be granted. (4) Every order granting or rejecting an application for the issue of a licence shall be in writing. (5) A licence granted under this section—(a) shall be in such form as may be prescribed; (b) shall be valid for such areas, for such period, for such method of fishing and for such purposes as may be specified therein; (c) may be renewed from time to time; and (d) shall be subject to such conditions and restrictions as may be prescribed and to such additional conditions and restrictions as may be specified therein. (6) A person holding a licence under this section shall ensure that every person employed by him complies, in the course of such employment, with the provisions of this Act, or any rule or order made thereunder and the conditions of such licence. Kerala state fishery policy, 2019 2.6 Regulation of mechanised fishing vessels within the tenitorial waters will be effectively implemented. However, licencing of new vessels against replacement of old ones, will be confined to traditional fishers alone. The number of licenses an individual can obtain will be limited. Measures to reassign or withdraw the excess number of vessels above the permissible limit will be undertaken. Introduction of "catch quota syslem" for mechanised fishing units will be given due consideration. THE KERALA MARINE FISHING REGULATTION ACT, 1980 6. Licensing of fishing vessels.—(1) The owner of fishing vessel may make an application to the authorized officer for the grant of a license for using such fishing vessel for fishing in any specified area. (2) Every application under sub-section (1) shall be in such form, contain such particulars,

	and be accompanied by such fees, as may be prescribed. (3) The authorized officer may, after making such enquiry as he deems fit and having regard to the matters referred to in sub-section (4), either grant or refuse to grant to the owner of the fishing vessel, a license for using such fishing vessel for fishing in the specified area or specified areas mentioned in such licence. (4) In granting or refusing licence under sub-section (3), the authorized officer shall have regard to the following, namely:- (a) whether the fishing vessel is a registered fishing vessel; (b) the condition of the fishing vessel including the accessories and fishing gear with which it is fitted. (c) Any order that may be made under section 4; (d) Any other matter that may be prescribed. (5) A licence granted under this section shall be in such form and subject to such conditions, including conditions as to payment of such fees and furnishing such security for the due performance of the conditions, as may be prescribed. Provided that different fees, and different amounts by way of security, may be prescribed in respect of licences for different classes of fishing vessels. (6) A licence granted under this section shall be valid for the period specified therein or for such extended period as the authorized officer may think fit to allow in any case. 7. Prohibition of fishing using fishing vessels which are not licenced.— No person shall, after the commencement of this Act, carry on fishing in any specified area using a fishing vessel which is not licenced under section 6: Provided that nothing in this section shall apply to any fishing vessel, which was being used for fishing immediately before the commencement of this Act, for such period as may be specified by the Government by notification in the Gazette The Kerala Marine Fishing Regulation Rules, 2018 8. Licence for fishing vessel—(1) Every application for the grant of licence of a fishing vessel under section 6 shall be in Form-2 and shall be accompanied by such fee and security specified in the Table below for the due performance of the conditions of the licence. Category of fishing vessel based on LOA (1) Amount of fee (₹) (2) Amount of security

	to be furnished (₹) (3) - Below 5 Meter Nil Nil - 5 – 9.99 Meter 200 Nil - 10 – 14.99 Meter 2,000 2,000 - 15 – 19.99 Meter 4,500 9,000 (2) On receipt of an application under sub-rule (1), the authorized officer shall, after making verification as per sub-section (4) of section 6 of the Act, grant or refuse such licence by an order. Such grant or refusal, as the case may be, shall be made within a period of one month from the date of receipt of the application. A licence granted under section 6 shall be in Form-3. (3) Where the application for the grant of licence is refused, the reasons for refusal shall be recorded in writing and a copy of the same along with the order of refusal shall be furnished to the applicant. On refusal of license, the security furnished and one half of the amount of fees paid by the applicant, shall be refunded to him. (4) Every licence issued by the authorized officer shall be entered in a register to be kept by him in Form-4. 9. Furnishing of information about movement of registered fishing vessel.—(1) The information to be furnished about the movement of a registered fishing vessel from the area of one port to the area of another port under section 10, shall be in writing and be sent by registered post or delivered in person to the authorized officer concerned and also to the port officer having jurisdiction over the area where to such fishing vessel has been moved before the vessel moves from the area of the former port, if the movement is for a period of more than two months.

	(2) In other cases, information about any type of movement of a registered fishing vessel shall be entered through online mobile apps named as Sagara envisaged by the Government. 10. Returns to be made by owner of registered fishing vessel—(1) Every owner of a registered fishing vessel shall furnish annual returns to the authorized officer before the end of July in every financial year in Form-5. (2) On failure to submit the annual returns by the owner of a registered fishing vessel, the security furnished shall be liable to be forfeited and registration shall be liable to be suspended or cancelled. 11. Impounding/Seizing of fishing vessel —(1) A fishing vessel impounded or seized shall be under the control of the authorized officer and shall be kept in any berthing place. The fuel pump of the vessel impounded or seized may be removed by the authorized officer with the help of mechanical staff and handed over to the nearest convenient office of the fisheries department to avoid forcible escape of such vessel from custody. (2) Disposal of seized fish and deposit of the proceeds thereof shall be in the manner prescribed under Rule 20. PRADHAN MANTRI MATSYA SAMPADA YOJANA, 2020 10.1 (i) The fishing vessel identified for fitment of communication/tracking device should possess valid ownership certificate, Registration certificate under the ReALCraft & fishing license, and the owner & crew members shall possess valid Biometric ID card and QR coded Aadhar Card.
Regional cooperation (Control/surveillance)	National Fisheries Policy, 2020 6.1.2 While monitoring of fish catch and effort and control of fishing through registration and licensing is in place, MCS activities will be further strengthened through greater engagement of the

	Department of Fisheries (DoF) of the maritime States/UTs, Coastal Marine Police and the Indian Coast Guard (ICG). National Marine Fishery Policy, 2017 19.0 The ICG and Coastal Police will be adequately trained and equipped to strengthen the MCS system.Efforts will also be made to strengthen the role of community in implementation of the MCS functions. Comprehensive Marine Fishing Policy, 2004 Participation in the Regional Fisheries Management Bodies (RFM) should be given due consideration for greater co-operation amongst the neighbouring countries in the region. Kerala state marine fishery policy, 2019 2.18 Since the marine sector management depends on the neighbouring States also, measures will be taken with the cooperation of neighbouring states to form an Interstate Fisheries Council for coordinating the marine sector management measures.
Compliance checks (Control)	National Fisheries Policy, 2020 6.7.2 The policy will voice the need for enlarging the scope of the Marine Fishing Regulation Acts (MFRAs) of the maritime States/UTs to include registration of the vessel building yards, an annual survey of fishing vessels for seaworthiness, routine inspection of communication & safety appliances through IRS/similar Technical Organizations, standard design specifications for fishing vessels, construction material and procedures for continuous monitoring and control of vessels construction by the Central and State Governments. National Marine Fishery Policy, 2017 21.0 The Government will consider enlarging the scope of the

	Marine Fishing Regulation Acts (MFRAs) of the maritime States/UTs to include registration of vessel building yards, annual survey of fishing vessels for seaworthiness, routine inspection of communication & safety appliances through IRS/similar Technical Organizations, standard design specifications for fishing vessels, construction material and procedures for continuous monitoring and control of vessels construction by the Central and State Governments. THE INDIAN MARINE FISHERIES BILL, 2021 6 (3) Without prejudice to the provisions contained in sub-sections (1) and (2), the Central Government shall,– (i) for the purposes of sustainable and responsible utilisation of fisheries resources in the high seas by the Indian fishing vessels and for conservation and management of such resources, from time to time, specify by notification, the measures in compliance with the resolutions emerging from the international instruments and agreements to which India is a party. 8 (3) Every fisher and crew onboard a fishing vessel shall carry proof of his identity including Aadhaar card. Comprehensive Marine Fishing Policy, 2004 4.2 Construction and introduction of new fishing units cannot go unchecked any more. All existing boat-building yards shall be registered and construction of any new fishing unit will be after obtaining a license. Standards for fishing vessel construction, especially for those below 20m OAL need to be developed and control would be exercised through new legislation. Provisions would be made to comply with requirement of registration of vessels and Standards of Training, Certifications and Watch keeping of fishing vessel personnel. THE MARITIME ZONES OF INDIA (REGULATION OF FISHING BY FOREIGN

	VESSELS) ACT, 1981 7. Foreign vessel entering maritime zones of India without licence or permit to stow gear.—Where any foreign vessel enters any maritime zone of India without a valid licence or permit granted under this Act, the fishing gear, if any, of such vessel shall, at all times while it is in such zone, be kept stowed in the prescribed manner. Notification on Ban on Light Fishing by Government of India, 2017 3. Coast guard is requested to take necessary steps to prevent use of LED light fishing in the Indian EEZ beyond territorial waters. 4. All the maritime states/UTs are advised to take necessary steps to prevent use of LED light fishing within and beyond territorial waters. Kerala state fisheries policy, 2019 2.4 In order to control the undesirable practices happening in this sector, control over the maximum number of fishing vessels in different category, minimum mesh size, length of fishing nets and size ofnets used, will be brought under control. Manufacture and distribution of illegal nets will be banned. Registration of net manufacturing units will be made compulsory. It will be mandatory that the permission of fisheries officials is required, for adopting new fishing. 2.5 Strict action will be taken against any destructive fishing practices along the Kerala coast such as, dynamite fishing, light fishing, FADs, poison fishing and bull/pair trawling. Fishing using gears like gillne! hook and line will be promoted techniques and for use of newly designed nets. THE KERALA MARINE FISHING REGULATTION ACT, 1980 4. Power to regulate, restrict or prohibit certain matters within specified area.— (1) The Government may having regard to the matters referred to in sub – section (2), by order notified in the Gazette, regulate, restrict or prohibit – (a) the fishing in any specified area by such class or classes of fishing vessels as may be prescribed, or (b) the number of fishing vessels which may be used for fishing in any specified area ; or (c) the catching in any specified area of such species of fish and for such period as may be specified in the notification, or (d) the use of such fishing gear in any specified area as may be prescribed

	(f) *the use of any dynamite, other explosive substance, poison or noxious chemicals, light or other destructive materials to catch or destroy the fish in the specified area as may be prescribed
Violation detections (Control)	THE INDIAN MARINE FISHERIES BILL, 2021 11. No foreign fishing vessel shall engage in fishing or fishing related activities in the maritime zones of India under this Act. 23 (2) Where the authorised officer has reason to believe that any foreign fishing vessel has committed an offence under this Act, or undertaken any illegal activity in India, he may, with or without a warrant (a) seize and detain such vessel, along with gear, catch, equipment, stores or cargo found on board of such vessel or belonging to the vessel; or (b) seize and detain any fishing gear abandoned by the vessel; or (c) arrest such person who has committed the offence, and command the master or operator of such seized foreign fishing vessel to bring the vessel to a port notified by the Central Government for this purpose: 30. Any foreign fishing vessel,– (i) found fishing in the maritime zones of India in contravention of section 11, may be confiscated along with its catch, gear, equipment, stores or cargo onboard and the owner or operator or master, as the case may be, shall be punishable with imprisonment for a term which may extend to two years, or with fine which may extend to one crore rupees, or with both; (ii) transitting through the maritime zones of India in contravention of section 12, shall be punishable with fine which shall not be less than ten lakh rupees but which may extend to twenty lakh rupees 31. (1) Any Indian fishing vessels engaged in fishing or fishing related activities without a valid licence in the exclusive economic zone in

	contravention of section 13 or section 15, shall be punishable to the extent mentioned in the third, fourth and fifth columns of the following table, with reference to the category of fishing vessels mentioned in the second column for the offences mentioned in the first column, respectively,– (2) Any Indian fishing vessel engaged in fishing or fishing related activities in the exclusive economic zone in contravention of the measures prescribed under section 6 or sub-section (2) of section 8 or section 17, shall be punishable to the extent mentioned in the third, fourth and fifth columns of the following table, with reference to the category of fishing vessels mentioned in the second column, for the offences mentioned in the first column, respectively,– 32. (1) Any Indian fishing vessels engaged in fishing or fishing related activities without a valid licence in the high seas in contravention of section 13 or section 15, shall be punishable to the extent mentioned in the third, fourth and fifth columns of the following table, with reference to the category of fishing vessels mentioned in the second column for the offences mentioned in the first column, respectively,– (2) Any Indian fishing vessels engaged in fishing or fishing related activities in contravention of clause (i) of sub-section (3) of section 6 in the high seas, shall be punishable to the extent mentioned in the third, fourth and fifth columns of the following table, with reference to the category of fishing vessels mentioned in the second column, for the offences mentioned in the first column, respectively,– 33. If any Indian fishing vessel fails to comply with the terms and conditions of the special licence granted under section 18, the owner or operator of such vessel shall be punishable with fine which may extend to one lakh rupees along with suspension or cancellation of the licence. 34. (1) If any person intentionally obstructs an authorised officer in the exercise of his powers, he shall be punishable– (i) in the case of Indian fishing vessel of less than 15 meter overall length, with fine of five thousand rupees and ten thousand rupees in case of 15 meter overall length and above;

	(ii) in the case of foreign fishing vessel, with fine which may extend to five lakh rupees. Comprehensive Marine Fishing Policy, 2004 4.3 There would be strict ban on all types of destructive methods of fishing. The designated authority would be competent to declare any method as destructive after it is convinced so based on facts and data pertaining thereto. 4.4 Mesh sizes in different parts of the fishing gear would be regulated. Penalties would be fixed for violations of mesh regulations. 4.6 Catching of juveniles and non- targeted species and discarding less preferred speciesonce they are caught would be strictly prohibited through legislation. THE MARINE FISHERIES (REGULATION AND MANAGEMENT) BILL, 2019 3.(1) No Indian fishing vessel shall engage in any fishing or fishing related activity within the exclusive economic zone of India or the high seas, except with a permit issued by the Central Government or any authority notified under this Act for fishing, and shall be subject such conditions and restrictions as prescribed. 3 (2) Permit issued under this Act shall be subject to levy of fee and charges for fishing and fishing related activities and in such manner as prescribed. 3 (6) No fishing vessel granted permit under this Act shall indulge in any form of Illegal, Unreported and Unregulated fishing activity in the maritime zones of India, the high seas and in the waters under national jurisdictions of other countries without authorization. (7) The Central Government may deny or withhold the issuance of permit, to a vessel or a class of vessels, having regard to matters related to national security of India and maintenance of law and order in the maritime zones of India. 8 (1) Any authorized officer may, to ensure compliance with this Act, either with or without a warrant may board, search and seize a fishing vessel in

	any maritime zone of India, and or in the high seas as may be prescribed for foreign vessels. 9. (1) Where any Indian fishing vessel is fishing in the exclusive economic zone of India and or the high seas without obtaining a permit granted under sub-section (1) of section 3, such vessel shall be impounded and the owner or master of such vessel shall be punishable with a fine as prescribed. (2) Where any foreign fishing vessel is fishing in the Maritime Zones of India, such vessel shall be impounded and the owner or master of such vessel shall be punishable with a fine as prescribed. THE MARITIME ZONES OF INDIA (REGULATION OF FISHING BY FOREIGN VESSELS) ACT, 1981 6. Cancellation or suspension of licence or permit.—(1) The Central Government may, if there is any reasonable cause to believe that the holder of any licence or permit has made any statement in, or in relation to, any application for the grant or renewal of such licence or permit which is incorrect or false in material particulars or has contravened any of the provisions of this Act or any rule or order made thereunder or of the provisions of any licence or permit or any conditions or restrictions specified therein, suspend such licence or permit, as the case may be, pending the completion of any inquiry against such holder for making such incorrect or false statement or for such contravention, as the case may be. (2) Where the Central Government is satisfied, after making such inquiry as is necessary, that the holder of any licence or permit has made such incorrect or false statement as is referred to in sub-section (1) or has contravened the provisions of this Act, rule or order made thereunder or of the provisions of any licence or permit or any conditions or restrictions specified therein, it may, without prejudice to any other penalty to which such holder may be liable under the provisions of this Act, cancel such licence or permit, as the case may be. (3) Every person whose licence or permit has been suspended under sub-section (1) shall, immediately after such suspension, stop using the foreign fishing vessel in respect of which such licence or permit is given and shall not resume such fishing until the order of suspension has been revoked. (4) Every holder of a licence or permit which is suspended or cancelled shall, immediately after such suspension or cancellation, surrender such licence or permit, as the case may be, to the Central Government.

	10. Penalty for contravention of section 3.—Where any foreign vessel is used in contravention of the provisions of section 3, the owner or master of such vessel shall,— (a) in a case where such contravention takes place in any area within the territorial waters of India, be punishable with imprisonment for a term not exceeding three years or with fine not exceeding rupees fifteen lakhs or with both; and (b) in a case where such contravention takes place in any area within the exclusive economic zone of India, be punishable with fine not exceeding rupees ten lakhs. 11. Penalty for contravention of licence.—Whoever contravenes the provisions of any licence shall be punishable with fine not exceeding rupees ten lakhs. 12. Penalty for contravention of permit.—Whoever contravenes the provisions of any permit shall be punishable,— (a) where such contravention relates to the area of operation or method of fishing specified in such permit, with fine not exceeding rupees five lakhs; and (b) in any other case, with fine not exceeding rupees fifty thousand. 13. Confiscation of vessels, etc.—(1) Where any person is convicted of an offence under section 10 or section 11 or section 12, the foreign vessel used in or in connection with the commission of the said offence, together with its fishing gear, equipment, stores and cargo and any fish on board such ship or the proceeds of the sale of any fish ordered to be sold under the second proviso to clause (a) of sub-section (4) of section 9 shall also be liable to confiscation. (2) The foreign vessel or other things confiscated under sub-section (1) shall vest in the Central Government. 14. Penalty for contravention of section 7.—Where any foreign vessel is found in any maritime zone of India in contravention of the provisions of section 7, the owner or master of such vessel shall be punishable with fine not exceeding rupees five lakhs. 15. Penalty for obstruction of authorised officers.—If any person— (a) intentionally obstructs any authorised officer in the exercise of any powers conferred under this Act; or (b) fails to afford reasonable facilities to the authorised officer or his assistants to board the vessel or to provide for adequate security to such officer and assistants at the time of entry into the vessel or when they are on board such vessel; or (c) fails to stop the vessel or produce the licence, permit, log book or other document or any fish, net, fishing gear or other equipment on board such vessel, when required to do so by the authorised officer, he shall be punishable with imprisonment for a term which may extend to one year or with

	fine not exceeding rupees fifty thousand or with both. Notification on Ban on Light Fishing by Government of India, 2017 1. The GOI prohibit: (i) Fishing in the EEZ beyond territorial waters by bull or pair trawling. (ii) Use or installation or operation of surface or submerged artifical lights/LED lights, fish light attractors or any other light equipment with or without generator on mechanized fishing vessel or motorized fishing craft for trawling, purse-seining, and gill netting operations in the Indian EEZ beyond territorial waters. 14. Power to enter and search fishing vessel, *boat building Yard and fishing net production unit.— *(1) The authorized officer may, if he has reason to believe that any fishing vessel is being, or has been, used in contravention of any of the provisions of this Act or of any order or rule made thereunder or any of the conditions of the licence, enter and search such vessel and impound such vessel and seize any fish found in it. *(2) The authorized officer may, if he has reason to believe that any boat building yard or fishing net production unit is used in contravention of any of the provisions of this Act or of any rule made or order issued thereunder or any of the conditions of registration, enter and search the boat building yard or fishing net producyion unit and send a report to the adjudicating officer regarding the search. THE KERALA MARINE FISHING REGULATTION ACT, 1980 17. Penalty.— (1) Where the adjudicating officer, after enquiry under section 16, finds that any person has used or caused or allowed to be used, (a) any fishing vessel fitted with 100 hp engine or above as single or in toto or any mechanized fishing vessel in contravention of the provisions of section 5 or 7 of this Act or any Rule made or order issued thereunder shall be liable to penalty of an amount of two lakh and fifty thousand rupees; (b) any non-mechanised fishing vessel fitted with engine in between 10hp and 100hp as single or in toto, in contravention of the provisions of section 5 or 7 of this Act or any Rule made or order issued

	thereunder shall be liable to penalty of an amount of one lakh rupees; (c) any non-motorised fishing vessel or any motorized fishing vessel fitted with 10hp engine or below, in contravention of the provisions of section 5 or 7 of this Act or any rule made or order issued thereunder shall be liable to penalty of an amount of ten thousand rupees; (d) any boat building yard in contravention of the provisions of section 9C of this Act or any rule made or order issued thereunder or has violated any of the conditions of the registration certificate or licence, shall be liable to penalty of an amount of two lakh and fifty thousand rupees; (e) any fishing net production unit in contravention of the provisions of section 9F of this Act or the rules made or order issued thereunder or has violated any of the conditions of the registration certificate or licence, shall be liable to penalty of an amount of two lakh and fifty thousand rupees. (2) In addition to any penalty that may be imposed under sub-section (1), the fish seized under Section 14 shall be forfeited to the Government (3) No person shall, on and from such date as may be notified by the Government, use such type of fishing vessel specified in such notification,- (a) without holographic registration plate; (b) without life saving appliances; (c) without certified syrang; (d) without certified engine driver; (e) without signal flag and light; (f) without colour coding; (4) Any person who violates any of the provisions of sub-section (3) and found guilty shall, - (a) in the case non-motorised fishing vessel fitted with 10hp engine or below, be liable to pay a penalty of two thousand and five hundred rupees; (b) in the case of fishing vessel fitted with engine in between above 10hp and 100hp, be liable to pay a penalty of ten thousand rupees;

	(c) in the case of fishing vessel fitted with 100hp engine or above be liable to pay a penalty of twenty five thousand rupees; (5) Any amount of penalty imposed under this Act shall be recovered as if it were an arrear of public revenue due on land The Kerala Marine Fishing Regulation Rules, 2018 3. Regulation, Restriction or Prohibition on Fishing Vessel—(1) Fishing in any specified area by such class or classes of fishing vessel is prohibited under clause (a) of sub-section (1) of section 4, namely:— (a) Fishing vessel without colour coding; (b) Fishing vessel without providing crew details; (c) Fishing vessel beyond life span as ordered by the Government; (d) Mechanised fishing vessel without Very High Frequency Marine Radio; (e) Fishing vessel having more than 20 meter LOA; (f) New type of fishing vessel without prior approval; (g) Mechanised fishing vessel obtained registration after the date of publication of these rules: Provided that replacement of the one, instead of the existing registered one after obtaining prior approval shall be excluded. (2) Fishing in any specified area by such class or classes of fishing vessel may be regulated under clause (a) of sub-section (1) of section 4, namely:— (a) Mechanised inboard fishing vessels registered after three months from this date, without facilities for kitchen, toilet and sleeping berth; (b) Fishing vessels without adhering to the length and horsepower ratio registered three months after the date of publication of these rules as shown in the table below: LOA of fishing vessel Maximum allowable Horsepower Up to 15 Meter 140 HP 15—17.5 Meter 200 HP 17.5 — 20.0 Meter 250 HP (c) Mechanised fishing vessel without Vessel Tracking Device or Automatic Identification System after

	one year from the date of publication of these rules; (d) Mechanised fishing vessel without Holographic Registration Plate (HRP) after one year from this date; (e) Fishing vessel without navigational, life saving and fire fighting appliances; (f) Fishing vessel without certified syrang or engine driver; (g) Fishing vessel with crew of below eighteen years; (h) Fishing vessel without insurance coverage for its crew; (i) Fishing vessel made up of Marine Plywood after five years from the date of publication of these rules. (3) Fishing in any specified area within 30 Meter depth off the coast of Kollemkode to Paravoorpozhikara and within 20 Meter depth off the coast of Paravoorpozhikara to Bengaramanjeswaram by Mechanized fishing vessel is prohibited under clause (a) of sub-section (1) of section 4 (4) Entry or fishing within any specified area by a fishing vessel which do not possess a valid licence from the authorized officer is prohibited under clause (a) of sub-section (1) of section 4: Provided that, such vessel without a licence can use the notified entry channel of ports and fishing harbour for innocent passage with prior Permission after remitting a special permit fee of rupees fifty thousand annually: Provided further that, such fishing vessel shall be a registered one fitted with either Automatic Identification System or vessel tracking device and Very High Frequency Marine Radio: Provided also that nothing contained in this sub-rule shall prevent the Passage of a fishing vessel under distress through the specified area. 4. Regulation on fishing gear—(1) Fishing in any specified area by such kind of fishing gear is prohibited under clause (d) of sub-section (1) of section 4, namely:—

	(a) Purse-seine; (b) Pelagic trawl; (c) Mid water trawl; (d) Bull trawl or Pair trawl; (e) New type of fishing gear without prior approval. (2) Having regard to the matters referred to in sub-section (2) of section 4 fishing in any specified area by bottom trawl is prohibited from sunset to sunrise under clause (d) of sub-section (1) of section 4, (3) Fishing in any specified area by the following kinds of fishing gear may be prohibited for such a period as notified by the Government under clause (d) of sub-section (1) of section 4, namely,— (a) Ring-seine; (b) Bottom trawl. (4) Fishing from an artificial reef in any specified area by using all type of fishing gear other than hand line is prohibited under clause (d) of sub-section (1) of section 4. 6. Prohibition of destructive fishing method.— (1) Fishing from any specified area using such type of substance or material is prohibited under clause (f) of sub-section (1) of section 4, namely:— (a) dynamite or other explosive substance; (b) poison or noxious chemicals; (c) artificial light with more than 12 volt in total. (2) Fishing from any specified area using any type of fishing gear or aggregating device made up of the

	following substance or material is prohibited under clause (f) of sub-section (1) of section 4, namely:— (a) Spadix, husk, leaf or other part of any plant; (b) Plastic material; (c) Used net; (d) Any other material as may be notified in the Gazette.
Implementation measures (Control)	Comprehensive Marine Fishing Policy, 2004 4.2 There will be closed season on both the coasts, the duration of which would be decided by a designated authority. Such closed seasons shall be uniform for neighboring states unless the geographic or climatic conditions warrant deviations. 4.5 The designated authority would, if found required doing so, decide the quota for different classes of fishing vessels in any region. 4.7 Posting of observers on commercial fishing vessels and enforcing monitoring control and surveillance system (MCS) would be ensured. 8.1 Besides reviewing the existing legal frame work for regulating the fishing operations, introduction of additional legal instruments in areas such as operation of Indian flag vessels in the EEZ, introduction of new fishing units, ensuring conservation of resources, limited access fishery, fishery harbour management etc. would be resorted to. PRADHAN MANTRI MATSYA SAMPADA YOJANA, 2020 2.3 (iii) (b) Under PMMSY, it is proposed to develop and manage a robust Monitoring, Control and Surveillance (MCS) regime, to ensure safety and security offishermen and their vessels/assets at sea. Necessary infrastructure facilities and Networks for MCS will be created and managed. INDIA'S BLUE ECONOMY: A DRAFT POLICY FRAMEWORK, 2020 3.17 Regulate fisheries practices and revisit fishing closure seasons. Develop a new national policy for the marine capture fisheries sector, putting in place legal and institutional frameworks for the effective management of marine fisheries

	THE MARINE FISHERIES (REGULATION AND MANAGEMENT) BILL, 2019 20 (2) (b) provisions to prevent, deter and eliminate all forms of IUU fishing in the maritime zones of India, the high seas and the waters under national jurisdiction of other countries without authorization under sub-section (5) of section 3 NATIONAL ENVIRONMENT POLICY, 2004 5.1.3 (iv) (c) Create local institutions with adequate participation for the environmental management of such areas to ensure adherence to the approved area development plans, which should be prepared in consultation with the local communities. (v) (a) Give greater legal standing to local community based organizations to undertake monitoring of environmental compliance, and report violations to the concerned enforcement authorities. (b) Develop feasible models of public-private partnerships to leverage financial, technical, and management resources of the private sector in setting up and operating infrastructure for monitoring of environmental compliance, with ironclad safeguards against possible conflict of interest or collusion with the monitored entities. National Marine Fishery Policy, 2017 22.0 The Government will establish a sound mechanism both at the port and at sea to ensure that the Indian fishing fleet does not engage in any IUU fishing within its own EEZ, high seas and EEZs of other nations. THE INDIAN MARINE FISHERIES BILL, 2021 6(2)(i) The Marine Fisheries Management Plan notified under sub-section (1) shall focus on sustainable utilisation of marine fisheries resources including their conservation through adoption of such measures as may be specified therein, including–(i) optimisation of fleet-size and fishing effort; (ii) spatial and temporal closures;

	(iii) specifying species-specific mesh size for protection of juvenile fish; (iv) promoting area-specific and resource-specific fishing practices; (v) reduction in by-catch and discards. 8 (2) The Central Government, for the purposes of sub-section (1), after consultation with the State Governments, shall prescribe such measures including laying down the standards of monitoring, control and surveillance for different classes or categories of fishing vessels and their area or areas of operation. 9 (1)The Central Government shall, after consultation with the State Governments, notify a National Plan of Action based on the voluntary instrument of the Food and Agriculture Organisation (FAO), namely, the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IUU Fishing). 9(2) The National Plan of Action notified under sub-section (1) shall provide for a framework to control IUU Fishing in the exclusive economic zone and the high seas, which may include– (i) evaluation of the scope and challenges in addressing IUU fishing; (ii) identifying the roles and functions of different management and regulatory authorities; (iii) sensitisation of the stakeholders; and (iv) such other requirements as the Central Government may deem necessary. Kerala State Fisheries Policy 2019 2.2 Necessary proposals will be put to the central Govemment, for ensuring measures to forbid permission for deep-sea fishing to foreign trawlers and corporate Indian owned vessels and also to prohibit entry ofthese vessels in Indian waters. 2.3 The marine fishing acts and rules will be timely modified, to keep up with the technological

	innovations and the impact of climate change, pollution, etc on the fisheries sector. 2.7 ln order to regulate the number of fishing vessels, the registration of Boat Building Yards with State Department of Fisheries will be made compulsory and in addition, Offrcial approval of design will be made mandatory for construction ofnew vessels. 2.8 Holographic Registration plates for all the registered mechanised fishing vessels will be made mandatory. Bathymetric equipment will be installed in trawling vessels on experimental basis and if found beneficial they will be expanded. 2.10 Measures will be taken to protect juveniles and regulate size of fish being caught. Minimum Legal Size (MLS) already specified for 5E species will be strictly enforced. The capture, auctioning, selling, marketing, transport and distribution of fish below the MLS will be proh ibited. 2.12 At present, zonation based on depth of operation and where mechanised fishing has been banned is in vogue for the exclusive use of traditional fishers. The rights of traditional fishers will be further protected by introducing more exclusive areas for them. Increasing the operational area of such exclusive zones also will be considered. The impact of the monsoon trawl ban will be scientifically examined and if necessary, the duration of the trawl ban will be extended for achieving full benefits ofthe ban. THE KERALA MARINE FISHING REGULATTION ACT, 1980 (3) Every order passed by the appellate authority under this section shall be final. 13(A). Constitution of Fisheries Management Councils. – (1) The Government may, for the effective management and surveillance of marine fisheries and for effectively carrying out the provisions of this Act, by notification in the Gazette, constitute a three tier system of Fisheries Management Councils , namely:- (a) Fishing Village Management Council; (b) District Fisheries Management Council; (c) State Fisheries Management Council; 13C. Powers, duties and functions of District Fisheries Management Council. - The District Fisheries Management shall exercise the following powers and perform the following duties and functions, namely:- (i) to prepare Marine Fishery Management plan for the district and get approval from the State Fisheries Management Council; (ii) to take appropriate decisions on Village Level Fishery Management Plan prepared by

	Fisheries Village Management Councils; (iii) to discharge the duties and powers assigned by the State Fisheries Management Council from time to time; (iv) to conduct district level awareness camps among marine fisherfolk and coastal inhabitants; (v) to resolve issues and conflicts between Fishing Village Management Councils and those which are referred by such councils; (vi) to help effective implementation of the provisions of this Act in the District; (vii) to help the State Fisheries Management Council for carrying out its functions and provide information called for by that Council; (viii) to provide information to the State Fisheries Management Council on matters of conservation of marine fish resources; (ix) such other powers, duties and functions as may be prescribed. 13D. Powers, duties and functions of State Fisheries Management Council.- The State Fisheries Management Council shall exercise the following powers and perform the following duties and functions, namely:- (i) to prepare Marine Fishery Management Plan for the State or part there of; (ii) to identify suitable sites/locations for mariculture and conservation activities; (iii) to create awareness among the marine fisherfolk and coastal inhabitants; (iv) to conduct training programmes, seminars, workshops etc in the field of mariculture, conservation of marine fish resources and post-harvest operations; (v) to resolve issues and conflicts between District councils and those which are referred by the District Councils; (vi) to publish scientific papers, books, audio-video cassettes, journals etc. on mariculture and conservation and management of marine fish resources; (vii) to provide information on management and conservation of marine fish resources; (viii) to do/get done all such other lawful things, that are conducive or incidental to the administration of State Fisheries Management Council and the attainment of the above objectives; (ix) if the decision taken by the District Fisheries Management Councils on any issue are found to be against the provisions of this Act, the State Fisheries Management Council may examine the same and take fresh decisions on such issue. (x) Such other powers, duties and functions as may be prescribed”.

EIA (Control)	INDIA'S BLUE ECONOMY: A DRAFT POLICY FRAMEWORK, 2020 3.13 To assess the impact of tourism, it is necessary to periodically initiate studies to map the touristarrivals, tourism infrastructure, major attractions/products in India's coastal areas and island territories and measure their impact on environmentally sensitive and ecologically fragile areas. This will enable evidence-based policy making. The sub group recommended that the Ministry of Tourism should initiate this exercise expeditiously in coordination with the Ministry of Environment, Forest and Climate Change (MoEF&CC) and the MoES, starting with the most ecologically vulnerable coastal areas.
Observer Programs (Surveillance)	PRADHAN MANTRI MATSYA SAMPADA YOJANA, 2020 10.2 (l) Department of Space – ISRO for MCS activities including satellite-based communication and/or tracking devices such as transponders. 8.1 (ii) States/UTs may also include Installation and Operationalization of Electronic Display Boards including their maintenance in the fishing harbours and fishing landing centers for effective surveillance, dissemination of information various aspects concerning marine fisheries including disaster, weather forecast advisories, marketing information, networking of harbours and landing centers, etc. INDIA'S BLUE ECONOMY: A DRAFT POLICY FRAMEWORK, 2020 3.17 Explore the deployment of a dedicated satellite system for management and regulation of fisheries and allied activities. Comprehensive Marine Fishing Policy, 2004 4.7 Posting of observers on commercial fishing vessels and enforcing monitoring control and surveillance system (MCS) would be ensured.
Budget (MCS)	THE INDIAN MARINE FISHERIES BILL, 2021 36. (1) There shall be a Fund to be called the Marine Fisheries Development

	Fund and there shall be credited thereto— (a) any grants or loans that may be made by the Central Government for the purposes of this Act; (b) all receipts collected under this Act; and (c) any grants or loans that may be made by any State Government or institution for the purposes of this Act. (2) The Fund shall be utilised for the welfare of fishers including traditional fishers operating non-motorised fishing vessels and for sustainable development and management of marine fisheries and related activities, as may be prescribed. (3) The Central Government shall, by notification, appoint an entity to maintain and administer the Fund. Comprehensive Marine Fishing Policy, 2004 Development of infrastructure for marine fisheries is of vital importance and should have n integrated approach. The facilities would inter alia include jetties, landing centres, provision for fuel, water, ice, repairs to vessels and gear. The concept of hygienic post harvest handling of fish would also be woven into the project. The policies in this direction would be as follows: 7.1 A master plan for the development of infrastructure for the next ten years would be drawn up. 7.2 Alternatives to the present system of financing of the infrastructure projects by the centre and the state with cost sharing would be tried out. Build-Operate-Own and Build-Operate-Transfer systems through private sector initiative also would be explored. PRADHAN MANTRI MATSYA SAMPADA YOJANA, 2020 8.1 (i) The State Government/UT administration shall submit Detailed Project Report (DPR) indicating the infrastructure requirements, viability assessment, detailed cost estimate, operational modalities, timeline for completion of the project. The State/UT shall also confirm availability of land and clearance and state budgetary resource wherever required. INDIA’S BLUE ECONOMY: A DRAFT POLICY FRAMEWORK, 2020 4.29 A Blue Economy Fund to implement various initiatives under NBEC

	would be set up either through an administrative arrangement from participating ministries/departments or as stand-alone budgeted item under the administrative control of the Governing Council of the NBEC. Its objective would be to initiate and support cross cutting projects of strategic importance to India.
Training initiatives (MCS)	National Fisheries Policy, 2020 6.1.2 The Central Government will work with the State/UT Governments to put in place a more effective MCS system and also assist in building up the skills and capacities of the MCS managers as also the role of the community in the implementation of the MCS functions. 6.7.2 To reduce such incidents, the Government will consider providing necessary awareness and training to fishers so that the crossing of IMBL is avoided. 6.8.2 Encouraging and facilitating setting up fisheries co-management structures in the States/UTs. Department to carry out focused activities such as R&D, MCS, Trade, International relations, development, etc. for convergence of activities as well as ease of business through a single-window system. Moving towards the establishment of a Ministry of Fisheries and Maritime Affairs and a Directorate General of Fisheries and Maritime Affairs Developing a blueprint to build the capacities of the staff that man the fisheries sector in the country. 6.8.5 Knowledge dissemination up to the last mile will be one of the key objectives of the policy. With increasing literacy rates and the ever-increasing use of the internet and smartphone, knowledge dissemination will be largely carried out through virtual platforms, making them not only fast and cost-effective but also ensuring that no one is left behind. Policy interventions would focus on establishing IT-based knowledge ‘hub and spokes’ for collection,

	collation, and processing of information that could be made available on a real-time basis to the fishers and fish farmers. It would also be ensured that such information provided to the end-users is in vernacular so that assimilation becomes easier. In the marine sector, the provision of Sagar Mitras being promoted by the Department of Fisheries would be a useful contact point for the stakeholders. National Marine Fishery Policy, 2017 23.0 In recent times, the incidences of Indian fishermen crossing the International Maritime Boundary Line (IMBL) have increased. This increase is attributed to many reasons, one of them being the redefining of the IMBL on the basis of the judgment given by the Permanent Court of Arbitration at The Hague. To reduce such incidents, the Government will consider providing necessary awareness and training to fishermen so that the crossing of IMBL is avoided. THE INDIAN MARINE FISHERIES BILL, 2021 5(2)(v) The Marine Fisheries Development Plan shall include measures and activities towards-capacity building of marine fishers. PRADHAN MANTRI MATSYA SAMPADA YOJANA, 2020 Security agencies involved in safeguarding safety and security of fishermen at sea and engaged in monitoring and surveillance in the maritime zones of India for securing India from sea-based threats will be strengthened by providing requisite regulatory infrastructure including boats, devices, equipment, etc. under PMMSY.

S3. Policy database

Table 1 lists all the policy documents selected for review following the study.

Table 1: List of all the regulatory documents reviewed in the study.

S.No.	Year	Policy name	Source	Last access date
1	1897	The Indian Fisheries Act, 1897	http://nbaindia.org/uploaded/Biodiversityindia/1.%20Fisheries%20Act.pdf	27/11/2023
2	1901	Rules under the Mysore Game & Fish Preservation Regulation II of 1901	https://indianculture.gov.in/archives/rules-under-mysore-game-fish-preservation-regulation-ii-1901-0	27/11/2023
3	1938	Andaman and Nicobar Islands Fisheries Regulation 1 of 1938	http://extwprlegs1.fao.org/docs/pdf/ind63797.pdf	27/11/2023
4	1958	THE MERCHANT SHIPPING ACT, 1958	https://fisheries.goa.gov.in/wp-content/uploads/2020/10/MERCHANT-SHIPPING-ACT-1958.pdf	27/11/2023
5	1965	The Indian Fisheries (Pondicherry Amendment) Act, 1965, Act 18 of 1965	http://extwprlegs1.fao.org/docs/pdf/IND171178.pdf	28/11/2023
6	1972	THE MARINE PRODUCTS EXPORT DEVELOPMENT AUTHORITY ACT	https://www.indiacode.nic.in/bitstream/123456789/1665/3/A1972-13.pdf	24/11/2023
7	1972	The Wildlife Protection Act, 1972	https://www.indiacode.nic.in/bitstream/123456789/1726/1/a1972-53.pdf	24/11/2023

8	1972	The territorial waters, continental shelf, EEZ and other maritime zones Act	https://www.indiacode.nic.in/bitstream/123456789/1484/2/A1976-80.pdf	23/11/2023
9	1981	The Maritime Zones of India (Regulation of fishing by foreign vessels) Act, 1981	https://www.indiacode.nic.in/bitstream/123456789/1817/1/198142.pdf	23/11/2023
10	1988	The Merchant Shipping (Indian Fishing Boats Inspection) Rules. 1988	https://fisheries.goa.gov.in/wp-content/uploads/2020/10/MERCHANT-SHIPPING-INDIAN-FISHING-BOATS-INSPECTION-RULES-188.pdf	
11	2004	National Environment Policy, 2004	http://www.fbae.org/2009/FBAE/website/images/PDF%20files/Importatant%20Publication/National%20environment%20Policy%202004%20(Draft%20for%20Comments).pdf	23/11/2023
12	2004	Comprehensive Marine fishing policy, 2004	https://www.icsf.net/wp-content/uploads/2004/11/81_comprehensive_marine_fishing_policyinida_2004.pdf	24/11/2023
13	2016	CSS - BLUE REVOLUTION (NEEL KRANTI MISSION) INTEGRATED DEVELOPMENT AND MANAGEMENT OF FISHERIES, 2016	https://www.nfdb.gov.in/PDF/Blue%20Revolution%20Final.pdf	22/11/2023
14	2017	Notification on Ban on Light Fishing by Government of India	https://fisheries.karnataka.gov.in/storage/pdf-files/Marine%20Fisheries%20Related/bull%20trawling%20on%20light%20fishing%20ban%	22/11/2023

			20in%20EEZ%20gov%20of%20India.pdf	
15	2017	National Policy on Marine Fisheries, 2017	https://dahd.nic.in/news/notification-national-policy-marine-fisheries-2017	22/11/2023
16	2019	THE MARINE FISHERIES (REGULATION AND MANAGEMENT) BILL, 2019	https://dof.gov.in/sites/default/files/2021-10/Draft_Indian_Marine_Fisheries_Bill_2021.pdf	13/11/2023
17	2020	INDIA'S BLUE ECONOMY: A DRAFT POLICY FRAMEWORK, 2020	https://incois.gov.in/documents/Blue_Economy_policy.pdf	21/11/2023
18	2020	National Fisheries Policy, 2020	https://dof.gov.in/documents/office-orders/national-fisheries-policy-2020	20/11/2023
19	2021	THE INDIAN MARINE FISHERIES BILL, 2021	https://dof.gov.in/sites/default/files/2021-10/Draft_Indian_Marine_Fisheries_Bill_2021.pdf	17/11/2023
20	2021	Pradhan Mantri Matsya Sampada Yojana	https://www.nfdb.gov.in/PDF/PMMSY-Guidelines24-June2020.pdf	20/11/2023
21	2022	Handbook on Indian fisheries	https://dof.gov.in/sites/default/files/2023-08/HandbookFisheriesStatistics19012023.pdf	22/11/2023
22	2023	Annual report, 2022-23 Department of Fisheries Ministry of Fisheries, Animal Husbandry & Dairying Government of India	https://dof.gov.in/sites/default/files/2023-04/Final_Annual_Report_2022-23_English.pdf	22/11/2023

23	1951	First Five-Year Plan	Accessed through Planning Commission archives (see note)[1]	28/11/2023
24	1956	Second Five-Year Plan	Accessed through Planning Commission archives (see note)	28/11/2023
25	1961	Third Five-Year Plan	Accessed through Planning Commission archives (see note)	28/11/2023
26	1969	Forth Five-Year Plan	Accessed through Planning Commission archives (see note)	28/11/2023
27	1974	Fifth Five-Year Plan	Accessed through Planning Commission archives (see note)	28/11/2023
28	1980	Sixth Five-Year Plan	Accessed through Planning Commission archives (see note)	28/11/2023
29	1985	Seventh Five-Year Plan	Accessed through Planning Commission archives (see note)	28/11/2023
30	1990	Eighth Five-Year Plan	Accessed through Planning Commission archives (see note)	28/11/2023
31	1992	Ninth Five-Year Plan	Accessed through Planning Commission archives (see note)	28/11/2023
32	2002	Tenth Five-Year Plan	Accessed through Planning Commission archives (see note)	29/11/2023

[1] Note: The documents for the First to the Thirtieth Five-Year Plans were accessed from Mayuresh Ganagal, who shared copies obtained from the Planning Commission archives. For access, readers may need to consult official archives or contact NITI Aayog for further assistance.

33	2002	Eleventh Five-Year Plan	Accessed through Planning Commission archives (see note)	29/11/2023
34	2007	Twelfth Five-Year Plan	Accessed through Planning Commission archives (see note)	29/11/2023
35	2012	Thirtieth Five-Year Plan	Accessed through Planning Commission archives (see note)	29/11/2023
36	2019	Iceland MoU	https://dof.gov.in/sites/default/files/2020-09/ICELAND.pdf	30/11/2023
37	2010	Norway MoU	https://dof.gov.in/sites/default/files/2020-09/NORWAY_0.pdf	30/11/2023
38	2011	Bangladesh MoU	https://dof.gov.in/sites/default/files/2020-09/BANGLADESH_0.pdf	01/12/2023
39	2007	Vietnam MoU	https://dof.gov.in/sites/default/files/2020-09/VIETNAMONPANGASIUSBREEDING.pdf	01/12/2023
40	2014	Morocco MoU	https://dof.gov.in/sites/default/files/2020-09/MOROCCO2014.pdf	01/12/2023
41	1980	The Kerala Marine Fishing Regulation Act, 1980	https://www.fisheries.kerala.gov.in/sites/default/files/inline-files/KERALA%20FISHERMEN%20MARINE%20FISHING%20ACT.pdf	04/12/2023
42	2007	The Kerala Monsoon Fishery (Pelagic) Protection Act,2007 (Act 13 of 2007)	https://www.fisheries.kerala.gov.in/sites/default/files/inline-files/pelagic%20protection%20act_1.pdf	04/12/2023

43	2010	The Kerala University of Fisheries and Ocean Studies Act, 2010	https://prsindia.org/files/bills_acts/acts_states/kerala/2011/Kerala%20Act%20No.%205%20of%202011.pdf	05/12/2023
44	2018	The Kerala Marine Fishing Regulation Rules,2018	https://www.fisheries.kerala.gov.in/sites/default/files/inline-files/KMFR%20Rule%202018%20%283%29.pdf	05/12/2023
45	2019	The State Fisheries Policy 2019	https://fisheries.kerala.gov.in/sites/default/files/inline-files/K006%20%281%29_compressed.pdf	05/12/2023
46	2021	The Kerala Marine Fishing Regulation Act, 2021	https://www.fisheries.kerala.gov.in/sites/default/files/inline-files/THE%20KERALA%20MARINE%20FISHING%20REGULATION%20%28AMENDMENT%29%20ACT%2C%202021.pdf	05/12/2023

S4. Coding structure

Table 2: Gives detailed information about the codes and subcodes used in the study, along with their definitions. It also includes columns showing the aspects reviewed and implemented in the study.

Theme	**Code (Definition/Reference)**	**Subcode**	**Policy review (What)** (This division includes the text mentioned in the policy document)	**Implementation (How)** (This category includes the practical execution aspects of the policy excerpts specified for the subcodes)
Monitoring	**Data Collection** (FAO_IPOA (24.9), 2001) (The effective functioning of any MCS system is focused upon the robustness of its data collection mechanisms. This code includes the important collection of information for assessing and managing activities related to fisheries, resource management, and compliance with regulatory measures. To ensure the achievement of MCS objectives, the smooth flow of information through well-structured systems is essential)	**Data collection methods**	This subcode will focus on policy excerpts that mention the procedures and strategies established for data collection in the context of monitoring activities.	This will be done by analysing the government's policy documents to grasp how they collect crucial information, whether through digital records and statistics.

		Stock assessments	This subcode is centred on identifying and extracting specific sections or passages that directly address the assessment and evaluation of fish stock assessments.	This section will primarily focus on the practical aspects of stock assessment strategies through policy excerpts and evidence of any authorised agencies conducting stock assessments on a regular basis.
	Monitoring tools (FAO_IPOA (24.3), 2001; FAO, 2015 (31c)) (This code addresses the use of technologies and methods related to monitoring in fisheries management. It involves the tracking of fishing vessels to gather data on vessel movement. These measures are in alignment with the broader goals of monitoring activities, which aim to enhance oversight and control over fishing operations)	**Tracking methods**	This section will primarily focus on excerpts from policy documents that suggest the use of technologies and methodologies aimed at monitoring data within the broader scope of fisheries management. It includes vessel tracking methods such as the Automatic Identification System (AIS) and Vessel Monitoring System (VMS) to monitor fishing activities within the Indian EEZ.	The aim is to explore technologies like AIS, VMS, and electronic logbooks, along with any other methods mentioned in the policy documents. This section will examine how these technologies are utilised in fisheries management, their intended purposes, and the authority or organisation responsible for implementing these activities.
	Training initiatives (FAO_IPOA (24.5),		It includes sections in the policy	This division will search all the training campaigns and

	2001) (This code is dedicated to government initiatives aimed at enhancing the competency and expertise of individuals engaged in the fisheries sector.These efforts typically involve training and educational programs designed to equip fisheries personnel with the knowledge and skills required for sustainable and responsible fishery practices**)**		documents about promoting industry knowledge and training initiatives to equip the fishery personnels for monitoring activities.	awareness programs conducted as per the policy documents by the Indian government to prepare fishery personnels for monitoring purposes.
	Budget (FAO_IPOA (33), 2001) (This section will primarily concentrate on policy excerpts that address the allocation of financial resources in the context of monitoring activities)		This section will focus on key areas within the policy structure related to the allocation of financial resources for monitoring activities in fisheries management.	The analysis will centre on examining the budget, specifically its allocation of funds for monitoring purposes.
Control	**Regulatory framework** (FAO_IPOA (24.2, 24.10), 2001; FAO,	**Marine spatial planning**	This section will focus on policy document provisions related to the	It will explore specific areas dedicated to spatial plans for managing fishing activities, including

	2015 (31d), MSP: FAO_IPOA (25), 2001; NPOA: FAO_IPOA (26, 27), 2001; Licensing: FAO_IPOA (24.1-24.2), 2001; FAO, 2015 (31b)) (Regulatory framework plays an essential role in the governance of various sectors by establishing and enforcing regulations aimed at maintaining control and order. Key components of this regulation framework encompass marine spatial planning to allocate areas for specific uses, Environmental Impact Assessments (EIA) to evaluate potential ecological impacts, and fisheries regulations to ensure sustainable harvesting practices. National Plans of Action (NPOA) outline enforcement strategies and regulations against Illegal, Unreported, and Unregulated (IUU) fishing. Furthermore, licensing		designation and management of zones within the framework of marine spatial planning.	how these plans are defined, their functioning, and the authorities responsible for their development and implementation.

	procedures, through permits, control access to these resources, ensuring that only authorized individuals or entities can engage in activities within designated zones. In this way, regulatory oversight contributes to preserving marine ecosystems and promoting responsible resource utilization)			
		Violation detections	This section focuses on policy excerpts outlining methods and measures used to identify breaches of rules or regulations, along with the corresponding actions taken in response to these violations.	It will highlight the steps or actions implemented when rules in the code of conduct are not followed. This will involve examining policy excerpts to identify breaches and the relevant laws addressing such violations.
		Environmental Impact Assessment	This section will explore specific passages within policy documents related to Environmental Impact Assessment (EIA), focusing on the requirements,	Particular attention will be given to EIA projects initiated by national and state governments, with a focus on Kerala. These projects will be analysed, and a comprehensive overview of their details will be provided in this

			methodologies, and procedures outlined in these documents.	section.
		Implementation measure	This code will highlight policy excerpts that detail measures taken to control illegal fishing behaviour in the marine sector.	It will focus on the implementation of these measures as mentioned in the policy documents. Additionally, the measures will be validated through detailed analysis to assess their effectiveness.
		Compliance checks	This part of the document highlights policy sections related to compliance, ensuring that personnel in the fisheries department adhere to rules and standards.	It includes measures such as regular inspections and assessments of on-ground activities to enforce compliance effectively.
		Licensing procedures	This section will focus on policy excerpts related to licensing procedures, including activities involving the application process and permit issuance.	It will evaluate the implemented licensing procedures, analysing the organisations and tools involved.
	Budget (FAO_IPOA (33),		This section will focus on key areas related to	It will emphasise the primary domains mentioned in the

	2001) (This section will primarily concentrate on policy excerpts that address the allocation of financial resources in the context of control activities for fisheries management)		the allocation of financial resources for control activities within fisheries management.	policy excerpts for allocating resources in the context of monitoring activities. The analysis will involve categorically summarising budget expenditures across various resources.
	Cooperation (FAO_IPOA (28.1-28.6), 2001) (This code includes collaborative efforts and the exchange of information for control purposes at both international and regional fronts to effectively manage transboundary resources and combat illegal fishing activities within the Indian context.)	**International cooperation**	This section will focus on policy excerpts related to controlling and managing fishery resources through international collaboration and information exchange.	It will emphasise international agreements between India and other countries on advanced control protocols, technologies, and data sharing.
		Regional cooperation	This section will focus on policy excerpts aimed at fostering regional collaboration for control purposes,	It will explore the implementation of these policy excerpts for regional cooperation in control activities.

			including the development of regional plans and campaigns to promote responsible fishing practices and effective fish resource management.	
	Training initiatives (FAO_IPOA (24.5), 2001) (This code is dedicated to government initiatives aimed at enhancing the competency and expertise of individuals engaged in the fisheries sector. These efforts typically involve training and educational programs designed to equip fisheries personnel with the knowledge and skills required for sustainable and responsible practices**).**		This section includes policy excerpts promoting industry knowledge and public awareness campaigns, highlighting efforts to enhance understanding and adoption of control practices among fisheries department personnel.	It explores the government-led training initiatives outlined in the policy structure to equip fisheries personnel for effective resource management.
Surveillance	**Observer deployment** (FAO_IPOA (24.4), 2001) (This part will focus on the policies	**Observer programs**	This section will focus on policy excerpts discussing various types of observer programmes used for the	It will delve into the specifics of these programmes, including at-sea observers, remote monitoring systems, and reporting mechanisms, to

	about observer programs to ensure various aspects of fishing operations, such as catch quantities, bycatch, catch illegal activities and fishing methods)		surveillance of fishery activities within the Indian EEZ.	provide a comprehensive understanding of the surveillance strategies.
	Cooperation (FAO_IPOA (28.1-28.6), 2001) (This code includes collaborative efforts and the exchange of surveillance information of both international and regional fronts to effectively manage transboundary resources and combat illegal fishing activities within the Indian policy context)	**International cooperation**	This section will focus on policy excerpts related to the surveillance of fishery resources through international collaboration and information exchange.	It will emphasise international agreements between India and other countries on surveillance protocols, technologies, and data sharing.
		Regional cooperation	This section will focus on policy excerpts aimed at fostering regional collaboration for surveillance purposes, including the development of regional plans and campaigns to promote responsible fishing practices and effective	It will explore the implementation of these policy excerpts for regional cooperation in surveillance activities. Information on collaborative projects will be categorically collected and summarised to provide a comprehensive overview of their objectives and outcomes.

			fish resource management.	
	Training initiatives (FAO_IPOA (24.5), 2001) (This code is dedicated to government initiatives aimed at enhancing the competency and expertise of individuals engaged in the fisheries sector.These efforts typically involve training and educational programs designed to equip fisheries personnel with the knowledge and skills required for sustainable and responsible practices**).**		This section includes policy excerpts promoting industry knowledge and public awareness campaigns, highlighting proactive efforts to enhance understanding and adoption of surveillance practices among fisheries department personnel..	It explores the government-led surveillance training initiatives outlined in the policy structure to equip fisheries personnel for effective resource management.
	Budget (FAO_IPOA (33), 2001) (This section will primarily concentrate on policy excerpts that address the allocation of financial resources in the context of surveillance activities for fisheries		This section will focus on key areas related to the allocation of financial resources for surveillance activities in fisheries management.	It will primarily explore the domains mentioned in policy excerpts regarding budget allocation for specific surveillance activities.

	management).			

S5. Overlap Analysis Table			
Introduction: This table gives a qualitative analysis of the MCS policies in India comparing it with International policies. This is done by comparing the language and elements word-by-word against international excerps for MCS. The analysis is categorised into two main groups: full overlap and partial overlap.			
Code	**IPOA_Policy**	**Partial alignment**	**Full alignment**
Data Collection	(FAO_IPOA (24.9), 2001) 24.9 Establishing and maintaining systems for the acquisition, storage and dissemination of MCS data, taking into account applicable confidentiality requirements.	National Fisheries Policy, 2020 Clause 6.1.1 While it includes knowledge management and data dissemination, it does not explicitly cover confidentiality requirements as highlighted in FAO's guidelines. Annual Report, 2022-23 Clause 3.1.2.1 (i) The policy focuses on data collection and validation, aligning with data acquisition aspects of the FAO guideline, but lacks explicit mention of data storage and confidentiality measures.	Indian Marine Fisheries Bill, 2021 Clause (7, 1, 2, 3) This policy establishes the Central Government as the main data repository and coordinator, aligning well with FAO's recommendation for maintaining systems for MCS data acquisition, storage, and dissemination. Pradhan Mantri Matsya Sampada Yojana, 2020 Clause (2.3 (iii) (c)) The emphasis on fisheries documentation and the creation of a comprehensive database directly reflects the FAO's guideline on acquiring, storing, and disseminating MCS data.

Tracking methods	(FAO_IPOA (24.3), 2001; FAO, 2015 (31c)) Tracking fishing vessels to gather data on vessel movements to enhance the oversight control over fishing operations	National Fisheries Policy, 2020 Clause (6.1.1 & 6.1.2) Talks about the use of Information Technology and Space Technology for supporting the fisher community. This is only partially aligned as it does not explicitly mention VMS or similar monitoring tools. The focus on deterring IUU fishing and establishing mechanisms for monitoring aligns partially with the initial definition but lacks specific mention of VMS or similar tools. Pradhan Mantri Matsya Sampada Yojana, 2020 Clause (25.2) The mention of an ICT-based MIS for monitoring aligns partially with the monitoring aspect of the initial definition but lacks specific mention of VMS or similar tools.	National Marine Fishery Policy, 2017 Clause (19.0) Direct mention of the mandatory use of logbooks, tracking devices, and IT tools like VMS, aligning closely with the initial definition's emphasis on VMS, logbooks/documentation, and monitoring. PRADHAN MANTRI MATSYA SAMPADA YOJANA, 2020 Clause (10.1 ii, iii, iv, v) Focuses on the support for fitting communication /tracking devices in traditional and motorized fishing vessels. This aligns with the initial definition's requirement for VMS and monitoring tools. INDIA'S BLUE ECONOMY: A DRAFT POLICY FRAMEWORK, 2020 Clause (3.17) Direct reference to strengthening Monitoring Control and Surveillance with VMS to track fishing vessels, which is in full alignment with the initial definition's emphasis on VMS and monitoring. Kerala State Marine Fishery Policy, 2019 Clause (2.21) Mandates surveillance and monitoring systems for fishing vessels, aligning with the initial definition's focus on VMS and monitoring tools. Iceland MoU Technological advice and cooperation regarding the Vessel Monitoring System in the coastal and deep-sea fishing areas.

Stock assessments	(FAO_IPOA (24.3), 2001; FAO, 2015 (31c)) Maintaining records of all vessels and their current owners and operators authorized to undertake fishing subject to their jurisdiction.	India's Blue Economy: A Draft Policy Framework, 2020 Clause 3.17 This policy mandates data input from fishermen via log sheets and integrates various data for assessment. It partially aligns with the aspect of logbooks /documentation but does not specifically address VMS or the broader monitoring and control regime. Annual Report, 2022-23 Clause 5.5.2 (vi) The focus is on the Fisheries research institute's mandate, including surveys and stock assessments. This indirectly relates to sustainable fisheries management but does not specifically mention VMS or monitoring tools as per the provided definition Bangladesh MoU A Joint Working Group (JWG) shall be formed to provide guidance, review the progress of activities and to facilitate co-operation under this Memorandum.Such joint activities should be environmentally sound and sustainable and may include the areas of aquaculture germplasm exchange, training in fish stock assessment, and Hilsa fisheries management.	National Marine Fishery Policy, 2017 Clause 19 This policy explicitly mentions the strengthening of Monitoring, Control, and Surveillance (MCS) through the introduction of chip-based smart registration cards, mandatory use of logbooks, and the use of space technologies and IT tools such as Vessel Monitoring System/Automatic Identification System. This aligns fully with the provided definition, which emphasizes the use of VMS, logbooks/documentation, and monitoring tools under a flag state's control regime.

	(FAO_IPOA (24.2, 24.10), 2001; FAO, 2015 (31d), MSP: FAO_IPOA (25), 2001; NPOA: FAO_IPOA (26, 27), 2001; Licensing: FAO_IPOA (24.1-24.2), 2001; FAO, 2015 (31b)) The regulatory framework is crucial for governance in various sectors, incorporating marine spatial planning, Environmental Impact Assessments, fisheries regulations, National Plans of Action against IUU fishing, and	National Marine Fishery Policy, 2017 Clause 8.0 Emphasizes fishing effort management and biodiversity conservation. This aligns partially with sustainable resource utilization and conservation aspects of the provided definition. THE MARINE FISHERIES (REGULATION AND MANAGEMENT) BILL, 2019 Clause 20 (2) Includes fisheries management plans and conservation measures, partially aligning with sustainable management and conservation aspects of the provided definition. THE TERRITORIAL WATERS, CONTINENTAL SHELF, EXCLUSIVE ECONOMIC ZONE AND OTHER MARITIME ZONES ACT, 1976 Clause (5) Focuses on the exploration and protection of resources in maritime zones, partially aligning with sustainable	THE INDIAN MARINE FISHERIES BILL, 2021 Clause 6 (3) (ii) This policy specifies measures for holistic and sustainable development of fisheries resources, aligning with the FAO Code of Conduct for Responsible Fisheries and Ecosystem Approach to Fisheries Management, which is in full alignment with the aspects of the provided definition regarding effective implementation of fisheries management and conservation practices. National Fisheries Policy, 2020 Clause 6.1.1 It includes elements of marine spatial planning (zonal/area-specific management, MPAs), biodiversity conservation, and the Ecosystem Approach to Fisheries Management (EAFM), aligning with FAO's integrated governance focus. Comprehensive Marine Fishing Policy, 2004 Clause 6.4 Discusses the Coastal Regulation Zone and area demarcation for fishing, aligning partially with spatial measures for sustainable resource utilization. NATIONAL ENVIRONMENT POLICY 2004 Clause 5.1.3 (iii) a) Addresses coastal ecological systems and Integrated Coastal Zone Management (ICZM) Plans, aligning partially with spatial measures for sustainable resource utilization. INDIA'S BLUE ECONOMY A DRAFT POLICY FRAMEWORK, 2020 Clause 3.10 Focuses on mapping and Coastal and Marine Spatial Plans (CMSP), aligning partially with spatial planning aspects of the provided definition. The Indian Marine Fisheries Bill, 2021 Clause 6 (2)(i) The measures for sustainable utilization, fleet size optimization, and spatial/temporal closures align with the FAO's focus on

International cooperation	(FAO_IPOA (28.1-28.6), 2001) 28.1 exchange data or information, preferably in standardized format, from records of vessels authorized by them to fish, in a manner consistent with any applicable confidentiality requirements; 28.2 cooperate in effective acquisition, management and verification of all relevant data and information from fishing; 28.3 allow and enable their respective MCS practitioners or enforcement personnel to cooperate in the investigation of IUU fishing, and to this end States should collect and maintain data and information relating to such fishing; 28.4 cooperate in transferring expertise and technology; 28.5 cooperate to make policies and measures compatible; 28.6 develop cooperative mechanisms that allow, inter alia, rapid responses to IUU fishing.	Iceland MoU It emphasises Cooperation in fisheries management through appropriate institutional framework and by devising measures for the long-term conservation and sustainable use of fishery resources in the Exclusive Economic Zone with the objective to utilize them optimally which partially overlaps with the idea of international cooperation suggested in FAO's MCS guidelines.	Comprehensive Marine Fishing Policy, 2004 Clause 8.3 This policy endorses international laws and conventions in the marine fisheries sector, harmonizes national laws with international ones, and emphasizes active participation in regional fisheries management bodies and cooperation among countries in the region. National Marine Fishery Policy, 2017 Clause 17 This policy includes the setup of institutional mechanisms for conflict management and integrated coastal development plans, which partially aligns with the initial definition in terms of cooperation but does not directly address many aspects of IUU fishing and data sharing. INDIA'S BLUE ECONOMY: A DRAFT POLICY FRAMEWORK, 2020 Clause 3.11 This policy emphasizes international cooperation and technology transfer, which aligns with aspects of cooperating in transferring expertise and technology (28.4) and potentially with developing cooperative mechanisms (28.6). Iceland MoU Creation of facilities for exchange of scientists and technical experts, especially in areas of estimating Total Allowable Catches (TAC) in offshore and deep sea areas and for determining the annual quota. allocation for different species through different fishing methods/fishing vessels.

Licensing procedures	This section will involve policy excerpts that pertain to licensing procedures involving permits issuance or application process related activities.	THE KERALA MARINE FISHING REGULATION ACT, 1980 Clause 6 Licensing of fishing vessels - from 1 to 6 section of this clause talks about the licensing procedure but they are not directly linked to the MCS management. National Fisheries Policy, 2020 Clause 6.1.2 Presently, the Government has an online uniform registration and licensing system (ReALCraft) to register all fishing vessels operating in the marine sector (artisanal, motorized, mechanized and non-mechanized). National Marine Fishery Policy, 2017 Clause 19 Presently, the Government has an online uniform registration and licensing system (ReALCraft) to register all fishing vessels operating in the marine sector (traditional, motorized, mechanized and non-mechanized). Both the above policies mention the ReALCraft system for online uniform registration and licensing of fishing vessels. While this shows an effort toward standardizing and implementing licensing procedures, it also provide detailed information on the entire authorization process, leading to partial alignment.	THE INDIAN MARINE FISHERIES BILL, 2021 Clause 17 This bill mandates that no Indian fishing vessels shall engage in fishing or related activities without a valid license, aligning fully with the concept of effective implementation of licensing and authorization by the flag state. THE MARITIME ZONES OF INDIA (REGULATION OF FISHING BY FOREIGN VESSELS) ACT, 1981 Clause 5 This act details the application process for licences for foreign vessels, including inquiry, prescribed matters, written orders, and specific conditions, which fully aligns with effective implementation and policy excerpts pertaining to licensing and authorization procedures. The Kerala Marine Fishing Regulation Rules, 2018 Clause 6 These regulations detail the licensing process for fishing vessels, including application forms, fees, security, and conditions for license issuance or refusal, representing a full alignment with the effective implementation of licensing procedures.

Regional cooperation	(FAO_IPOA (28.1-28.6), 2001) 28.1 exchange data or information, preferably in standardized format, from records of vessels authorized by them to fish, in a manner consistent with any applicable confidentiality requirements; 28.2 cooperate in effective acquisition, management and verification of all relevant data and information from fishing; 28.3 allow and enable their respective MCS practitioners or enforcement personnel to cooperate in the investigation of IUU fishing, and to this end States should collect and maintain data and information relating to such fishing; 28.4 cooperate in transferring expertise and technology; 28.5 cooperate to make policies and measures compatible; 28.6 develop cooperative mechanisms that allow, inter alia, rapid responses to IUU fishing.		National Fisheries Policy, 2020 Clause (6.1.2) This policy aligns fully with the definition as it emphasizes strengthening Monitoring, Control, and Surveillance (MCS) activities through greater engagement with various departments and authorities. It directly addresses the aspect of cooperating in effective acquisition, management, and verification of data and information from fishing (28.2) and allowing and enabling cooperation among MCS practitioners (28.3). Kerala State Marine Fishery Policy, 2019 Clause (2.18) Similar to the 2004 policy, this policy emphasizes cooperation with neighboring states to form an Interstate Fisheries Council for marine sector management. While this indicates a level of cooperation, it doesn't specifically align with the aspects of data exchange, MCS cooperation, or other elements mentioned in your definition.

Training initiatives	(FAO_IPOA (24.5), 2001) Providing training and education to all persons involved in MCS operations	National Fisheries Policy, 2020 Clause (6.7.2 & 6.8.5) These sections partially align with the concept. They focus on providing awareness and training to fishers to avoid crossing international boundaries and on disseminating knowledge using virtual platforms. While this involves training and education, it's not exclusively focused on MCS operations. National Marine Fishery Policy, 2017 Clause (23.0) This policy mentions providing necessary awareness and training to fishermen to prevent the crossing of the IMBL. It aligns partially as it includes training elements, but not specifically for MCS operations. National Marine Fishery Policy, 2017 Clause (19.0) This policy partially aligns with the definition. It focuses on training and equipping the Indian Coast Guard and Coastal Police to strengthen the MCS system and involves the community in MCS functions. This aligns with aspects of cooperation in MCS (28.3) and may touch on the transfer of expertise and technology (28.4).	National Fisheries Policy, 2020 Clause (6.1.2) This section directly aligns with the concept by stating the intention to build skills and capacities of MCS managers and involve the community in MCS functions. THE INDIAN MARINE FISHERIES BILL, 2021 Clause (5(2)(v)) This bill includes measures for capacity building of marine fishers, which aligns fully with the concept of providing training and education in MCS operations.

Compliance checks	(FAO_IPOA (27), 2001) States should ensure that national efforts to prevent, deter and eliminate IUU fishing are internally coordinated.This part of the document will show the policy parts about compliance to make sure that personnel in the fisheries department follow the rules and standards. It includes regular inspections and assessments of the onground activities.	THE INDIAN MARINE FISHERIES BILL, 2021 Clause 6 (3) (i) While this bill specifies measures for sustainable use of fisheries resources and mandates identity proof for fishers, it focuses more on sustainable utilization and international compliance rather than internal coordination for IUU fishing. THE MARITIME ZONES OF INDIA (REGULATION OF FISHING BY FOREIGN VESSELS) ACT, 1981 Clause 7 This act regulates foreign fishing vessels, which is related to compliance but is more focused on external regulation than internal coordination. Notification on Ban on Light Fishing by Government of India, 2017 Clause 3&4 While this notification aims to prevent certain fishing practices, it's more a specific measure than a comprehensive approach to internal coordination and compliance.	National Fisheries Policy, 2020 Clause 6.7.2 This policy directly aligns by outlining measures such as enlarging the scope of Marine Fishing Regulation Acts to include various registration and inspection processes, ensuring compliance and adherence to standards. National Marine Fishery Policy, 2017 Clause 21 Similar to the 2020 policy, it focuses on expanding Marine Fishing Regulation Acts to include registration and inspection measures, aligning with the concept of ensuring compliance and regular assessments. Comprehensive Marine Fishing Policy, 2004 Clause 4.2 This policy calls for the registration of boat-building yards and sets standards for vessel construction, which aligns with the need for regular inspections and compliance with standards. Kerala State Fisheries Policy, 2019 Clause 2.4 It proposes control over fishing vessels, nets, and practices, including registration requirements and strict action against destructive practices, aligning fully with the concept of compliance and internal coordination.

			The Indian Marine Fisheries Bill, 2021 Clauses 11, 23 (2), and 30 These clauses prohibit foreign vessels from fishing in Indian waters and allow the seizure and penalization of foreign vessels for illegal activities. This aligns directly with FAO's emphasis on enforcing applicable laws and taking actions against breaches, demonstrating strong measures for compliance and control. The Comprehensive Marine Fishing Policy, 2004 Clauses (4.3, 4.4, and 4.6) These clauses ban destructive fishing practices, regulate mesh sizes, and prohibit catching juveniles, aligning with FAO's call for measures to ensure compliance with conservation laws and regulations. The focus on strict enforcement aligns well with FAO's enforcement guidelines. The Kerala Marine Fishing Regulation Rules, 2018 Clauses under 17 These rules outline specific restrictions and penalties for illegal fishing practices, including the use of prohibited gear and vessels without tracking devices, aligning well with FAO's focus on enforcement and regulatory compliance measures. 4. The Marine Fisheries (Regulation and Management) Bill, 2019 Clauses 3 (1, 6), 8 (1), and 9 These clauses emphasize the requirement of permits, restrictions on IUU fishing, and empower authorized officers to board and search vessels for compliance. This aligns directly with FAO's emphasis on enforcement through cooperative mechanisms and agreements for regulation and compliance in national and international waters.
	(FAO_IPOA (31), 2001) Flag States should consider entering into agreements or arrangements with other States and otherwise cooperate for the	The Indian Marine Fisheries Bill, 2021 Clauses 31, 32, and 33 The clauses address penalties for Indian vessels without valid licenses and violations in the EEZ and high seas. While they show strong enforcement measures, there is less focus on cooperation with other states for enforcement, making it a partial overlap with the FAO's emphasis on international agreements.	The Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Act, 1981 Clauses 6, 10, 11, 12, and 13 These clauses outline strict penalties for foreign vessels violating Indian maritime laws, including confiscation and fines. The strong enforcement actions align with the FAO's emphasis on the need for effective national measures to enforce laws and cooperate for compliance.

		India's Blue Economy Draft Policy Framework, 2020 Clause 3.17 The policy focuses on regulating fisheries practices and closure seasons, which aligns with FAO's spatial and temporal measures but lacks mention of cooperation for IUU fishing enforcement.	Comprehensive Marine Fishing Policy, 2004 Clause (4.2 & 4.5) and 8.1 The policy incorporates regulatory measures (closed seasons, quotas), and updates legal frameworks, aligning directly with FAO's focus on governance, monitoring, and regulatory compliance. Pradhan Mantri Matsya Sampada Yojana (PMMSY), 2020 Clause 2.3 (iii) (b) The explicit focus on creating an MCS regime aligns directly with the FAO's guidelines on establishing strong monitoring, control, and surveillance systems for effective fisheries management. The Marine Fisheries (Regulation and Management) Bill, 2019 Clause 20 (2) (b) This clause aligns with FAO's guidelines by explicitly addressing the prevention, deterrence, and elimination of IUU fishing, including international waters. National Environment Policy, 2004 Clause 5.1.3 (v) (a) Granting legal standing to community-based organizations for monitoring compliance aligns with the FAO's emphasis on compliance measures and involving multiple stakeholders in enforcement. National Marine Fishery Policy, 2017 Clause 22.0 This clause aligns directly with the FAO's guidelines by establishing mechanisms to prevent IUU fishing within national and international waters. The Indian Marine Fisheries Bill, 2021 Clause 8 (2) The clause on setting standards for MCS directly aligns with FAO's emphasis on establishing robust monitoring and control systems. Clause 9 This clause aligns perfectly with FAO's guidelines by developing a National Plan of Action against IUU fishing, based on the FAO's International Plan of Action. Kerala State Fisheries Policy, 2019

Budget	(FAO_IPOA (33), 2001) States should endeavour to make available the technical capacity and resources which are needed to implement the IPOA. This should include, where appropriate, the establishment of special funds at the national, regional or global level. In this respect, international cooperation should play an important role.	Comprehensive Marine Fishing Policy, 2004 Clause 7 (7.1 & 7.2) This text partially aligns with the initial statement. It talks about developing infrastructure for marine fisheries and exploring different financing systems, including private sector involvement. While it doesn't explicitly mention the establishment of special funds, it aligns with the broader theme of resource allocation for development in the sector. PRADHAN MANTRI MATSYA SAMPADA YOJANA, 2020 Clause 8.1 (i) This policy also partially aligns. It requires detailed project reports from State/UT governments for infrastructure requirements, which indicates a structured approach to resource allocation and technical capacity development, albeit not specifically mentioning fund creation. INDIA'S BLUE ECONOMY: A DRAFT POLICY FRAMEWORK, 2020 Clause 4.25 This document talks about setting up a Blue Economy Fund under the NBEC, which partially aligns with the initial statement's focus on fund creation and resource allocation. However, it's more focused on cross-cutting projects and strategic importance, which is a narrower scope than the broader developmental emphasis in the initial statement.	THE INDIAN MARINE FISHERIES BILL, 2021 Clause 36 (1) (2) (3) This text aligns fully with the initial statement. It discusses the creation of a Marine Fisheries Development Fund, which is in line with the concept of establishing special funds at the national level for specific objectives. The fund's usage for the welfare of fishers and sustainable development mirrors the broader goals outlined in the initial statement.

Observer Programs	(FAO_IPOA (24.4), 2001) Implementing, where appropriate, observer programmes in accordance with relevant national, regional or international standards, including the requirement for vessels under their jurisdiction to carry observers on board	INDIA'S BLUE ECONOMY: A DRAFT POLICY FRAMEWORK, 2020 Clause 3.17 This document proposes exploring the deployment of a dedicated satellite system for the management and regulation of fisheries. Again, while this doesn't align directly with the requirement of carrying observers on board, the focus on regulation and management of fisheries through satellite systems shares a thematic connection with monitoring and compliance in marine activities. PRADHAN MANTRI MATSYA SAMPADA YOJANA, 2020 Clause 10.2 (l) This policy includes the use of technology from ISRO for Monitoring, Control, and Surveillance (MCS) activities and mentions the installation and operationalization of electronic display boards for surveillance and information dissemination. This directly align with observer programmes on vessels, the emphasis on surveillance and information dissemination in marine fisheries is somewhat related.	Comprehensive Marine Fishing Policy, 2004 Clause 4.7 The policy regulates posting of observers on commercial fishing vessels and enforcing MCS through this which is fully overlapping with the international guidelines.
EIA	This section will delve into specific passages within the policy documents that concern Environmental Impact Assessment (EIA). It is aimed at a detailed examination of the content and provisions associated with EIA, highlighting the requirements, methodologies, and procedures laid out in the documents	INDIA'S BLUE ECONOMY: A DRAFT POLICY FRAMEWORK, 2020 Clause 3.13 This policy talks about assessing the impact of tourism through studies to map tourist arrivals and infrastructure and measure their impact on environmentally sensitive areas. While this is related to environmental impact assessment, it is specific to tourism and does not cover the broader scope of EIA in policy documents as mentioned in the initial statement. It focuses on evidence-based policymaking in coordination with various ministries, which aligns partially with the concept of examining EIA methodologies and procedures.	

S6. ECLIPSE Framework

We applied the ECLIPSE framework to each policy excerpt to create precise search strings (Medical University of South Carolina Library, 2024). The ECLIPSE framework comprises six elements:

Expectation: Defines the goals.
Client Group: Clarifies the main stakeholders (e.g., fishers, coastal communities).
Location: Specifies the context (e.g., India/Kerala).
Impact: Details the specific outcomes or effects.
Professional: Identifies the professionals or agencies involved.
Service: Covers concrete actions or services, such as resource management and advisory services.

Each excerpt was mapped to these components to guide the formulation of targeted searches.

Search string	Google URL	ECLIPSE Rationale	Policy Excerpt	Date of Search (mm/dd/yy)	Time of Search	total search results
("knowledge management" AND "marine fisheries sector" AND "resource abundance and distribution" AND "real-time resource maps" AND "productivity assessments" AND "Potential Fishing Zone advisories" AND "PFZ" AND "weather forecasts" AND "fishers benefit" AND "India")	Link	1. Expectation: Enhancing information accessibility in the marine fisheries sector 2. Client Group: Fisheries management authorities, fishers, researchers 3. Location: India 4. Impact: Improved decision-making and operational efficiency in fisheries 5. Professionals: Information technology experts, marine scientists, data analysts 6. Service: Knowledge management and information dissemination in marine fisheries	Knowledge management will be an approach to foster quick and easy dissemination and availability of information on key attributes of the marine fisheries sector, such as resource abundance and distribution; real-time resource maps; productivity assessments; real-time Potential Fishing Zone (PFZ) advisories; and weather forecasts for the benefit of fishers.	04/03/2024	11:19	1570
("national-level platform" AND "oversee data process" AND "incentives for agencies" AND "data collection" AND "data collation" AND "data dissemination" AND "India")	Link	1. Expectation: Creation of a national oversight platform 2. Client Group: Agencies involved in data management, national authorities 3. Location: India 4. Impact: Enhanced data management and information sharing 5. Professionals: Data specialists, IT experts, policy makers 6. Service: Data collection, collation, and dissemination on a national level	Developing a national-level platform to oversee the process and provide necessary incentives to the agencies that would contribute to data collection, collation, and dissemination.	04/03/2024	15:31	6,98,000
("PMMSY" AND "fisheries documentation" AND "database of fishers" AND "marine and inland fisheries" AND "multipurpose support services" AND "fisheries management" AND "coastal villages" AND "Sagar Mitras" AND "support services to marine fishermen" AND "fish catch documentation" AND "India")	Link	1. Expectation: Development and support of fisheries documentation and management services 2. Client Group: Marine and inland fishers, coastal village communities 3. Location: India 4. Impact: Improved fisheries management and support services 5. Professionals: Fisheries management authorities, "Sagar Mitras", data managers 6. Service: Fisheries data management, support services under PMMSY	Fisheries documentation and database of fishers both marine and inland will be taken up under PMMSY. Multipurpose support services in fisheries management will be created and supported under the scheme. Under PMMSY, coastal villages will be deployed with multipurpose workers, Sagar Mitras for providing multiple support services to the marine fishermen, undertaking fish catch documentation, etc	04/03/2024	15:44	809

("data collection" AND "periodic re-validation" AND "fishery resources potential" AND "fishery management advice" AND "national regional global conventions" AND "agreements" AND "fish data collection" AND "fishers survey" AND "strengthening fisheries database" AND "India")	Link	1. Expectation: Regular assessment and advice provision for fishery resource management 2. Client Group: Fisheries management authorities, researchers, policy makers 3. Location: India 4. Impact: Informed and effective fishery management based on updated data 5. Professionals: Data analysts, marine biologists, fisheries scientists 6. Service: Data collection, validation, and fisheries database management	Data collection and periodic re-validation of potential of fishery resources to provide advice on fishery management issues enshrined in the national, regional and global conventions and agreements and other associated activities. Fish data collection, fishers survey and strengthening of fisheries database.	04/04/2024	10:22	3,98,000
("Information Technology" AND "IT" AND "Space Technology" AND "ST" AND "optimum use" AND "support of fisher community" AND "benefits in fisheries" AND "India")	Link	1. Expectation: Utilization of IT and ST for the benefit of the fisher community 2. Client Group: Fisher community, technology providers, fisheries management authorities 3. Location: India 4. Impact: Enhanced support and efficiency in fisheries through technology 5. Professionals: IT and space technology experts, fisheries professionals 6. Service: Technology implementation in the fisheries sector	The use of Information Technology (IT) and Space Technology (ST) will be put to optimum use for harnessing the benefits in support of the fisher community.	04/04/2024	12:34	52,00,000
("strengthening MCS functions" AND ("log books" OR "movement tokens" OR "colour coding of fishing vessels" OR "biometric cards" OR "space technologies" OR "Vessel Monitoring System" OR "Automatic Identification System") AND fishers)	Link	1. Expectation: Strengthening MCS functions 2. Client Group: Fishers 3. Location: [Location not specified] 4. Impact: Mandatory use of log books, movement tokens, colour coding, biometric cards, space technologies and IT tools 5. Professionals: [Not clearly specified, but we can infer regulators and fishers] 6. Service: MCS functions, Vessel Monitoring System/Automatic Identification System	In addition, MCS functions will also be strengthened by the mandatory use of log books, movement tokens, colour coding of fishing vessels, biometric cards to fishers for their identity and also space technologies and IT tools (e.g. Vessel Monitoring System/Automatic Identification System).	04/04/2024	16:59	2
("motorised fishing vessels" AND "beneficiaries support" AND ("DAT" OR "communication device" OR "tracking device") AND "prescribed unit cost" AND "recommendations" AND "States" OR "UTs")	Link	1. Expectation: Support for fitment of devices on motorised fishing vessels 2. Client Group: Beneficiaries of motorised fishing vessels 3. Location: States/UTs (since specific locations are not given, the general reference to States/UTs will be used) 4. Impact: Fitment of a maximum of two devices (DAT and communication/tracking device) 5. Professionals: [Not clearly specified, but likely involves policymakers and marine authorities] 6. Service: Provision of devices on vessels	Within the prescribed unit cost, beneficiaries of motorised fishing vessels will supported for fitment of a maximum of two devices comprising of a) DAT and b) appropriate communication and/or tracking device based on the recommendations of the concerned States/UTs.	04/05/2024	10:07	23,00,000
("ICT-based Management Information System" AND "implementation" AND "PMMSY" AND "monitoring" AND ("physical progress" OR "financial progress" OR "deliverables"))	Link	1. Expectation: Implementation of ICT-based MIS 2. Client Group: Users or managers under PMMSY (Pradhan Mantri Matsya Sampada Yojana) 3. Location: [Location not specified, we'll leave this out or use a general term if the policy is national] 4. Impact: Regular monitoring of physical and financial progress and deliverables 5. Professionals: ICT professionals, policy implementers, monitoring staff 6. Service: MIS for PMMSY	A comprehensive Information Communication Technology (ICT) based Management Information System (MIS) will be put in place for regular monitoring of the physical and financial progress and deliverables under the PMMSY.	04/05/2024	13:31	3

("Vessel Monitoring System" AND "tracking fishing vessels" AND "catch locations" AND "catch times" AND "fishing methods" AND "fishers identity" AND "India")	Link	1. Expectation: Tracking movement of fishing vessels 2. Client Group: Authorities or organizations monitoring fishing activities; possibly fishers if the system is also meant for their use 3. Location: India 4. Impact: Knowing where and when fish are caught, the methods used, and by whom 5. Professionals: Monitoring authorities, fisheries management, IT specialists implementing VMS 6. Service: VMS as a tracking and monitoring tool for fishing vessels	Strengthen Monitoring Control and Surveillance such as the Vessel Monitoring System (VMS) to track the movement of fishing vessels in order to know where and when the fish are caught, how, and by whom.	04/05/2024	15:44	25,30,000
("patrolling high seas" AND "Areas Beyond National Jurisdiction" AND "Vulnerable Marine Ecosystems" AND "prevent significant adverse impacts" AND "Potential Yield Estimates")	Link	1. Expectation: Enhancing patrolling and protection measures 2. Client Group: Marine patrol authorities, environmental protection agencies 3. Location: High seas and Areas Beyond National Jurisdiction (ABNJ) 4. Impact: Prevention of significant adverse impacts on Vulnerable Marine Ecosystems (VMEs) 5. Professionals: Patrol officers, marine biologists, environmental policy makers 6. Service: Patrolling and environmental protection services aimed at achieving Potential Yield Estimates (PYE)	Undertake patrolling in high seas and Areas Beyond National Jurisdiction (ABNJ). Prevent significant adverse impacts on Vulnerable Marine Ecosystems (VMEs) to achieve Potential Yield Estimates (PYE).	04/05/2024	17:06	6,95,000
("government" AND "mechanism" AND ("port" OR "sea") AND "Indian fishing fleet" AND "IUU fishing" AND ("Exclusive Economic Zone" OR "EEZ" OR "ABNJ"))	Link	1. Expectation: Establishment of a sound mechanism for monitoring fishing activities 2. Client Group: Indian fishing fleet 3. Location: Indian EEZ and ABNJ 4. Impact: Prevention of any IUU fishing activities 5. Professionals: Government authorities, port officials, marine patrols 6. Service: Monitoring and regulatory mechanisms at the port and at sea	India being a party to several International Agreements/Arrangements to deter, prevent and eliminate Illegal, Unreported and Unregulated (IUU) fishing, the Government will establish a sound mechanism both at the port and at sea to ensure that the Indian fishing fleet does not engage in any IUU fishing within its own EEZ and the ABNJ.	04/08/2024	10:44	198
("FSI" AND "Marine Fisheries forecasting" AND "Remote Sensing" AND "India" AND ("Artisanal" OR "Mechanized" OR "Industrial") AND "fishing sectors")	Link	1. Expectation: Forecasting for Marine Fisheries and application of Remote Sensing 2. Client Group: Artisanal, Mechanized, and Industrial fishing sectors 3. Location: India 4. Impact: Enhanced forecasting and resource management 5. Professionals: FSI (Fisheries Survey of India), remote sensing specialists, and sector-specific professionals 6. Service: Fisheries forecasting service using Remote Sensing technology	FSI is mandated for Marine Fisheries forecasting including application of Remote Sensing for the benefit of Artisanal, Mechanized and Industrial sectors.	04/08/2024	12:16	49,500
("capacity appraisal framework" AND "fishing capacity" AND ("Potential Yield estimates" OR "PY estimates") AND "regular stock assessments" AND "sustainable harvest" AND "fish stocks" AND "India")	Link	1. Expectation: Preparation of a capacity appraisal framework and regular stock assessments 2. Client Group: Fishing industry and fisheries management authorities 3. Location: India 4. Impact: Sustainable harvesting of identified fish stocks 5. Professionals: Fisheries scientists and policymakers involved in capacity appraisal and stock assessment 6. Service: Fishing capacity appraisal and stock assessments based on PY estimates	A capacity appraisal framework will be prepared for fishing capacity based on the PY estimates and regular stock assessments will be carried out to allow for the identified fish stocks to be harvested on a sustained basis.	04/08/2024	14:24	5,10,000

("MCS" AND "strengthening" AND "improvements" AND "chip-based smart registration cards" AND "mandatory use of logbooks" AND ("paper" OR "electronic") AND "space technologies" AND "IT tools" AND "India")	Link	1. Expectation: Strengthening and improvements in MCS 2. Client Group: Entities involved in MCS (could include fisheries, regulatory bodies, etc.) 3. Location: India 4. Impact: Introduction of chip-based smart registration cards, mandatory use of logbooks, and extensive use of space technologies and IT tools 5. Professionals: IT professionals, marine conservationists, regulatory authorities 6. Service: Technology-enhanced MCS operations	Strengthening and improvements in MCS will be carried out in a phased manner by introducing chip-based smart registration cards, mandatory use of logbooks (both paper and electronic), and also through extensive use of space technologies and IT tools.	04/09/2024	10:12	1
("mandatory registration" AND "boat-building yards" AND "fishing gear registration" AND "accountability" AND "ghost fishing" AND "seaworthiness of fishing vessels" AND "phasing out ageing vessels" AND "unviable fishing vessels" AND "India")	Link	1. Expectation: Implementation of mandatory registrations and safety measures in the fishing industry 2. Client Group: Boat-building yards, fishers, and owners of fishing vessels in India 3. Location: India 4. Impact: Ensuring accountability and safety in fishing operations, reducing ghost fishing 5. Professionals: Indian regulatory authorities, fishing industry stakeholders 6. Service: Regulation of fishing practices and vessel standards	While updating the existing rules and regulations it would also be necessary to introduce mandatory registration of boat-building yards, registration of fishing gear to ensure its accountability and reducing the loss of gear/ghost fishing, seaworthiness of fishing vessels, and phasing out of ageing and unviable fishing vessels.	04/09/2024	10:52	9
("mandatory data input" AND "primary stakeholders" AND "fishermen" AND "log sheets" AND "marine resource survey data" AND "commercial landings data" AND "assess commercially valuable stocks" AND "Department of Fisheries" AND "India")	Link	1. Expectation: Enhanced data collection and integration for fisheries management 2. Client Group: Fishermen and fisheries management bodies in India 3. Location: India 4. Impact: Mandatory data input from fishermen, integration of survey and landing data, assessment of valuable stocks 5. Professionals: Indian fishermen, data analysts, Department of Fisheries 6. Service: Data management and stock assessment in fisheries	Ensure mandatory data input availability from primary stakeholders (fishermen) via log sheets; integration of marine resource survey data and commercial landings data. Assess commercially valuable stocks by a body designated by Department of Fisheries (DoF).	04/09/2024	12:08	2
("exploratory surveys" AND "charting of fishing grounds" AND "fish stocks assessment" AND "Indian EEZ" AND "adjoining high seas" AND "fisheries research" AND "surveys on request" AND ("States" OR "UTs"))	Link	1. Expectation: Conducting surveys and research in fisheries 2. Client Group: Fisheries management authorities, researchers, and state/UT governments in India 3. Location: Indian EEZ and adjoining high seas 4. Impact: Improved understanding and management of fish stocks 5. Professionals: Marine biologists, surveyors, government agencies 6. Service: Exploratory surveys, charting, and stock assessments in fisheries	Exploratory surveys, charting of fishing grounds, assessment of fish stocks in the Indian EEZ and adjoining high seas and research thereof besides the specific surveys on request from the States/UTs.	04/09/2024	14:23	68,500
("Marine Protected Areas" AND "MPAs" AND "review" AND "periodic evaluation" AND "legislative support" AND "tenure rights" AND "traditional fishers" AND "livelihood" AND "conservation measures" AND "India")	Link	1. Expectation: Review and evaluation of MPAs, legislative support for fishers 2. Client Group: Traditional fishers, conservation authorities 3. Location: India 4. Impact: Protection of tenure rights and livelihoods in the context of conservation 5. Professionals: Government policymakers, environmental agencies, legal experts 6. Service: Conservation policy review and legislative action in fisheries	The Government will also undertake the review and periodic evaluation of the existing Marine Protected Areas (MPAs) and for providing legislative support to ensure that tenure rights of the traditional fishers are secured and their livelihoods are not impacted by such conservation measures.	04/09/2024	17:11	3

("species-specific management plans" AND "zonal management plans" AND "area-specific management plans" AND "Ecologically and Biologically Significant Areas" AND "EBSAs" AND "Vulnerable Marine Ecosystems" AND "VMEs" AND "endangered and threatened species" AND "ETP species" AND "sustainable utilization of resources" AND "fish refugia" AND "consultative processes" AND "India")	Link	1. Expectation: Developing and implementing specific management plans for conservation and sustainable use 2. Client Group: Conservation agencies, fisheries management, environmental stakeholders in India 3. Location: India 4. Impact: Protection and conservation of specific ecosystems and species, sustainable resource management 5. Professionals: Environmental planners, marine biologists, policy makers 6. Service: Environmental and fisheries management plans	Efforts will be made towards mainstreaming biodiversity conservation in production processes; species-specific and zonal/area-specific management plans, including conservation of Ecologically and Biologically Significant Areas (EBSAs) and Vulnerable Marine Ecosystems (VMEs); protection of iconic and endangered and threatened (ETP) species; spatial and temporal measures for sustainable utilization of resources; and creation of fish refugia through consultative processes.	04/10/2024	11:09	332
("Ecosystem Approach to Fisheries Management" AND "EAFM" AND "marine ecosystem" AND "living constituents" AND "non-living constituents" AND "social attributes" AND "economic needs" AND "stakeholders" AND "India")	Link	1. Expectation: Implementation of the Ecosystem Approach to Fisheries Management 2. Client Group: Fisheries management authorities, stakeholders in the marine ecosystem in India 3. Location: India 4. Impact: Balancing ecological well-being with social and economic aspects 5. Professionals: Environmental and fisheries policymakers, marine biologists, social and economic planners 6. Service: Comprehensive fisheries management strategy	The Ecosystem Approach to Fisheries Management (EAFM) will be implemented with due consideration of the well-being of all living and non-living constituents of the marine ecosystem and the social attributes and economic needs of the stakeholders.	04/10/2024	14:26	3
("Environmentally Sensitive Zones" AND "legal status" AND "incomparable values" AND "special conservation efforts" AND "India")	Link	1. Expectation: Identification and legal recognition of Environmentally Sensitive Zones 2. Client Group: Environmental regulatory authorities, conservation bodies in India 3. Location: India 4. Impact: Enhanced protection for zones with unique environmental importance 5. Professionals: Legal experts, environmental scientists, policy makers 6. Service: Legal and environmental policy development	Identify and give legal status to Environmentally Sensitive Zones in the country with environmental entities with “Incomparable values” requiring special conservation efforts.	04/10/2024	17:03	58
("institutional mechanism" AND "conflict reduction" AND "conflict management" AND "inter-State conflicts" AND "international conflicts" AND "neighbouring countries" AND "marine fisheries management" AND "India")	Link	1. Expectation: Establishment and enhancement of an institutional mechanism for conflict management 2. Client Group: Government bodies, fisheries management authorities in India, and neighboring countries 3. Location: India 4. Impact: Mitigation and management of inter-State and international fisheries conflicts 5. Professionals: Diplomats, legal experts, fisheries policymakers 6. Service: Conflict management and cooperation in marine fisheries	An institutional mechanism will be set up and strengthened to reduce and manage inter-State conflicts as well as international conflicts, especially with the neighbouring countries for the management of marine fisheries	04/11/2024	12:01	16,80,000
("International cooperation" AND "Coastal and Marine Spatial Planning" AND "CMSP" AND "Indian Ocean Rim Association" AND "IORA" AND "best practices" AND "technology transfer")	Link	1. Expectation: Strengthening international cooperation in CMSP 2. Client Group: Global leaders in CMSP, IORA countries 3. Location: International, with a focus on the Indian Ocean region 4. Impact: Adoption of best practices and technology transfer in CMSP 5. Professionals: International policymakers, marine spatial planners, technology experts 6. Service: Enhancing CMSP through international collaboration	International cooperation with global leaders in CMSP and Indian Ocean Rim Association (IORA) countries needs to be encouraged to adopt best practices and the transfer of technology.	04/11/2024	16:41	2

("India-Iceland cooperation" AND "fisheries management" AND "institutional framework" AND "long-term conservation" AND "sustainable use of fishery resources" AND "Exclusive Economic Zone" AND "EEZ" AND "Technological advice" AND "Vessel Monitoring System" AND "VMS" AND "coastal fishing areas" AND "deep-sea fishing areas")	Link	1. Expectation: Development of fisheries management and technology use 2. Client Group: Indian and Icelandic fisheries authorities, fishermen 3. Location: India and Iceland, focusing on Indian EEZ 4. Impact: Conservation and sustainable use of fishery resources, implementation of VMS 5. Professionals: Policymakers, marine scientists, technologists from India and Iceland 6. Service: Institutional framework for fisheries management, technological implementation in fisheries	**Iceland MoU** 1. Cooperation in developing sustainable management of deep-sea fishing. 2. Cooperation in fisheries management through an appropriate institutional framework and by devising measures for the long-term conservation and sustainable use of fishery resources in the Exclusive Economic Zone. 3. Technological advice and cooperation regarding the Vessel Monitoring System in the coastal and deep-sea fishing areas.	04/12/2024	10:21	6,360
("India-Iceland cooperation" AND "fisheries management" AND "institutional framework" AND "long-term conservation" AND "sustainable use of fishery resources" AND "Exclusive Economic Zone" AND "EEZ" AND "Technological advice" AND "Vessel Monitoring System" AND "VMS" AND "coastal fishing areas" AND "deep-sea fishing areas")	Link	1. Expectation: Enhancing collaboration in fisheries and aquaculture 2. Client Group: Government officials, scientists, researchers, and workers in fisheries and aquaculture from both India and Vietnam 3. Location: India and Vietnam 4. Impact: Increased exchange of knowledge, skills, and technology in fisheries and aquaculture 5. Professionals: Administrative officers, researchers, specialists in fisheries and aquaculture, and technology experts 6. Service: Training, information exchange, and technological cooperation	**Vietnam MoU** 1. Exchange of information and data, exchange of government officials, scientists, research assistants, specialists, fisheries extension workers. 2. Cooperation in training for administrative officers, researchers, and human resources in fisheries and aquaculture. 3. Technological advice and cooperation.	04/12/2024	13:57	8,03,000
("India-Morocco MoU" AND "cooperation in training" AND "technical research in marine fisheries" AND "scientific research in fish processing industry" AND "scientific research programs" AND "fish resources assessment" AND "fisheries management improvement" AND "fisheries exploitation" AND "fisheries marketing")	Link	1. Expectation: Collaborative development in fisheries training, research, and industry 2. Client Group: Professionals in marine fisheries and fish processing industries from India and Morocco 3. Location: India and Morocco 4. Impact: Enhanced scientific research, resource assessment, management, and marketing in the fisheries sector 5. Professionals: Trainers, scientists, industry experts, marketing and management professionals 6. Service: Cooperative training and research in marine fisheries and fish processing	**Morocco MoU** 1. The MoU aims to set principles and methods for cooperation in training, technical, and scientific research in marine fisheries and fish process industry fields. 2. The emphasis on promoting scientific research programs, fish resources assessment, and improvement of management, exploitation, and marketing.	04/12/2024	15:39	3,13,000
("India-Bangladesh MoU" AND "training in fish stock assessment" AND "coordinating authorities" AND "collaboration in fisheries" AND "coordination in fisheries")	Link	1. Expectation: Enhancing expertise in fish stock assessment and coordination between countries 2. Client Group: Fishery professionals and coordinating authorities from India and Bangladesh 3. Location: India and Bangladesh 4. Impact: Improved fish stock assessment skills and stronger collaborative efforts 5. Professionals: Fishery experts, policymakers, and coordinating officials from both countries 6. Service: Training and intergovernmental cooperation in fisheries management	**Bangladesh MoU** 1. It includes areas like training in fish stock assessment. 2. The designation of coordinating authorities from both countries emphasizes the importance of collaboration and coordination.	04/15/2024	11:04	1,27,000

("India-Norway MoU" AND "biological research in fisheries" AND "technical knowledge in fisheries" AND "fisheries management standards" AND "comprehensive approach to fisheries management")	Link	1. Expectation: Acknowledging and integrating various aspects of fisheries management 2. Client Group: Fisheries professionals, researchers, and policymakers in India and Norway 3. Location: India and Norway 4. Impact: Enhanced fisheries management through a multidisciplinary approach 5. Professionals: Biological researchers, technical experts, standards professionals 6. Service: Collaborative fisheries management based on diverse expertise	**Norway MoU** 1. The recognition of the inter-relationship between biological research, technical knowledge, and other standards highlights the comprehensive approach to fisheries management.	04/15/2024	14:08	5,58,000
("ReALCraft" AND "online uniform registration and licensing system" AND "fishing vessels registration" AND "marine sector" AND "artisanal" AND "motorized" AND "mechanized" AND "non-mechanized fishing vessels" AND "India")	Link	1. Expectation: Implementation of an online registration and licensing system for fishing vessels 2. Client Group: Owners and operators of various types of fishing vessels in India 3. Location: India 4. Impact: Streamlining the registration process for all marine sector vessels 5. Professionals: Government regulatory bodies, IT professionals, fishermen 6. Service: Vessel registration and licensing through an online system	Presently, the Government has an online uniform registration and licensing system (ReALCraft) to register all fishing vessels operating in the marine sector (artisanal, motorized, mechanized and non-mechanized).	04/15/2024	18:21	1,800
("catch quota system" AND "mechanised fishing units" AND "consideration" AND "Kerala")	Link	1. Expectation: Implementation of a catch quota system 2. Client Group: Operators and owners of mechanized fishing units in Kerala 3. Location: Kerala, India 4. Impact: Regulation of fishing activities through quotas 5. Professionals: Fisheries management authorities, policymakers, fishing industry professionals 6. Service: Fisheries management and control	The number of licenses an individual can obtain will be limited. Measures to reassign or withdraw the excess number of vessels above the permissible limit will be undertaken. Introduction of "catch quota syslem" for mechanised fishing units will be given due consideration.	04/16/2024	12:03	73,900
("Marine Conservation Society" AND "MCS activities" AND "Department of Fisheries" AND "maritime States" AND "UTs" AND "Coastal Marine Police" AND "Indian Coast Guard" AND "ICG" AND "strengthened engagement")	Link	1. Expectation: Enhancing MCS activities 2. Client Group: DoF of maritime States/UTs, Coastal Marine Police, Indian Coast Guard 3. Location: India, specifically maritime States and Union Territories 4. Impact: Increased involvement and coordination among these entities for marine conservation 5. Professionals: Officials from the DoF, Coastal Marine Police, and the ICG 6. Service: Marine conservation and protection	While monitoring of fish catch and effort and control of fishing through registration and licensing is in place, MCS activities will be further strengthened through greater engagement of the Department of Fisheries (DoF) of the maritime States/UTs, Coastal Marine Police and the Indian Coast Guard (ICG).	04/16/2024	14:37	1,650
("Regional Fisheries Management Bodies" AND "RFMB participation" AND "cooperation" AND "neighbouring countries" AND "fisheries management" AND "India")	Link	1. Expectation: Enhancing regional cooperation in fisheries management 2. Client Group: Indian fisheries authorities and neighboring countries in the region 3. Location: India and its neighboring regions 4. Impact: Strengthened regional cooperation and management of fisheries 5. Professionals: Representatives from RFMBs, policymakers, fisheries experts 6. Service: Participation in regional fisheries governance and cooperation	Participation in the Regional Fisheries Management Bodies (RFM) should be given due consideration for greater co-operation amongst the neighbouring countries in the region.	04/16/2024	17:45	7

("Interstate Fisheries Council" AND "marine sector management" AND "cooperation" AND "neighbouring states" AND "India")	Link	1. Expectation: Establishment of an Interstate Fisheries Council for coordination 2. Client Group: Indian states involved in marine sector management 3. Location: India 4. Impact: Enhanced coordination in marine sector management across different states 5. Professionals: State fisheries authorities, policymakers 6. Service: Interstate collaboration and management in the marine sector	Since the marine sector management depends on the neighbouring States also, measures will be taken with the cooperation of neighbouring states to form an Interstate Fisheries Council for coordinating the marine sector management measures.	04/16/2024	19:06	1
("effective MCS system" AND "skills development" AND "capacities of MCS managers" AND "community role" AND "implementation of MCS functions" AND "India")	Link	1. Expectation: Enhancement of the MCS system and capacity building 2. Client Group: MCS managers and the community involved in marine conservation in India 3. Location: India 4. Impact: Improved MCS effectiveness and community involvement in conservation 5. Professionals: Government officials, MCS managers, community representatives 6. Service: Marine conservation and capacity development	The Central Government will work with the State/UT Governments to put in place a more effective MCS system and also assist in building up the skills and capacities of the MCS managers as also the role of the community in the implementation of the MCS functions.	04/17/2024	10:09	5,06,000
("awareness and training for fishers" AND "International Maritime Boundary Line" AND "IMBL" AND "avoid crossing" AND "India")	Link	1. Expectation: Providing awareness and training to fishers 2. Client Group: Fishers in India 3. Location: India 4. Impact: Preventing the crossing of the IMBL by fishers 5. Professionals: Government agencies, maritime trainers, and educators 6. Service: Awareness and training programs related to maritime boundaries	To reduce such incidents, the Government will consider providing necessary awareness and training to fishers so that the crossing of IMBL is avoided.	04/17/2024	15:30	1,52,000
("fishing vessel registration" AND "Kerala")	Link	Expectation: Implementing or enhancing the process of fishing vessel registration Client Group: Owners and operators of fishing vessels, maritime regulatory bodies Location: Kerala Impact: Standardization and regulation of fishing activities through vessel registration Professionals: Maritime authorities, registration officials Service: Administrative process of vessel registration in the fisheries secto	Registration of fishing vessel	04/17/2024	17:11	924
("sound mechanism" AND "port" AND "at sea" AND "Indian fishing fleet" AND "IUU fishing" AND "Exclusive Economic Zone" AND "EEZ" AND "high seas" AND "EEZs of other nations")	Link	1. Expectation: Establishment of a mechanism to combat IUU fishing 2. Client Group: Indian fishing fleet and regulatory authorities 3. Location: India, its EEZ, high seas, and EEZs of other nations 4. Impact: Prevention of IUU fishing activities by the Indian fishing fleet 5. Professionals: Government regulatory bodies, maritime authorities 6. Service: Enforcement and monitoring in fisheries management	The Government will establish a sound mechanism both at the port and at sea to ensure that the Indian fishing fleet does not engage in any IUU fishing within its own EEZ, high seas and EEZs of other nations.	04/18/2024	11:20	2

("Marine Fishing Regulation Acts" AND "MFRAs" AND "maritime States" AND "UTs" AND "vessel building yards registration" AND "annual survey of fishing vessels" AND "seaworthiness" AND "inspection of communication & safety appliances" AND "IRS" AND "Technical Organizations" AND "standard design specifications for fishing vessels" AND "construction material" AND "continuous monitoring" AND "vessel construction control" AND "Central and State Governments" AND "India")	Link	1. Expectation: Expansion of regulatory measures in marine fishing 2. Client Group: Maritime States/UTs, vessel building yards, fishing vessel operators in India 3. Location: India 4. Impact: Enhanced safety, standardization, and regulation in the marine fishing industry 5. Professionals: Government regulatory authorities, technical organizations like IRS, shipbuilders 6. Service: Regulation and monitoring of marine fishing and vessel construction	The policy will voice the need for enlarging the scope of the Marine Fishing Regulation Acts (MFRAs) of the maritime States/UTs to include registration of the vessel building yards, an annual survey of fishing vessels for seaworthiness, routine inspection of communication & safety appliances through IRS/similar Technical Organizations, standard design specifications for fishing vessels, construction material and procedures for continuous monitoring and control of vessels construction by the Central and State Governments.	04/18/2024	12:23	511
("boat-building yards registration" AND "fishing unit construction licensing" AND "new fishing unit" AND "India")	Link	1. Expectation: Registration of boat-building yards and licensing for new fishing unit construction 2. Client Group: Boat-building yard owners, fishing industry stakeholders in India 3. Location: India 4. Impact: Regulation and standardization in the fishing industry 5. Professionals: Government regulatory authorities, boat-builders 6. Service: Licensing and registration in the marine industry	All existing boat-building yards shall be registered and construction of any new fishing unit will be after obtaining a license.	04/18/2024	16:08	64,50,000
("foreign vessel" AND "maritime zones of India" AND "without licence or permit" AND "fishing gear stowage" AND "prescribed manner")	Link	1. Expectation: Enforcement of stowing gear regulations for unlicensed foreign vessels 2. Client Group: Foreign vessels in Indian maritime zones 3. Location: Maritime zones of India 4. Impact: Compliance with maritime regulations for unlicensed vessels 5. Professionals: Maritime enforcement authorities, coast guard 6. Service: Regulation enforcement in maritime zones	Foreign vessel entering maritime zones of India without licence or permit to stow gear.—Where any foreign vessel enters any maritime zone of India without a valid licence or permit granted under this Act, the fishing gear, if any, of such vessel shall, at all times while it is in such zone, be kept stowed in the prescribed manner.	04/19/2024	11:17	4,86,000
("Coast Guard" AND "prevent LED light fishing" AND "Indian EEZ" AND "beyond territorial waters")	Link	1. Expectation: Prohibition of LED light fishing practices 2. Client Group: Indian Coast Guard, fishermen 3. Location: Indian EEZ beyond territorial waters 4. Impact: Prevention of illegal fishing practices and environmental protection 5. Professionals: Coast Guard officers, maritime law enforcement 6. Service: Enforcement of maritime regulations	Coast guard is requested to take necessary steps to prevent use of LED light fishing in the Indian EEZ beyond territorial waters.	04/19/2024	14:23	2,17,000
("control in fishing sector" AND "maximum number of fishing vessels" AND "different categories" AND "minimum mesh size" AND "length of fishing nets" AND "size of nets" AND "Kerala")	Link	1. Expectation: Implementing control measures in the fishing industry 2. Client Group: Fisheries sector, vessel operators, and regulatory bodies 3. Location: Kerala 4. Impact: Reduction of undesirable fishing practices through regulatory control 5. Professionals: Fisheries management authorities, regulatory officials 6. Service: Regulation and management in the fisheries sector	In order to control the undesirable practices happening in this sector, control over the maximum number of fishing vessels in different category, minimum mesh size, length of fishing nets and size ofnets used, will be brought under control.	04/19/2024	16:35	6,40,000

("strict action" AND "destructive fishing practices" AND "Kerala coast" AND "dynamite fishing" AND "light fishing" AND "Fish Aggregating Devices" AND "FADs" AND "poison fishing" AND "bull trawling" AND "pair trawling")	Link	1. Expectation: Enforcement of regulations against destructive fishing practices 2. Client Group: Fishermen and regulatory authorities along the Kerala coast 3. Location: Kerala coast 4. Impact: Prevention and reduction of harmful fishing methods 5. Professionals: Fisheries enforcement officers, environmental protection agencies 6. Service: Regulatory and enforcement services in fisheries management	Strict action will be taken against any destructive fishing practices along the Kerala coast such as, dynamite fishing, light fishing, FADs, poison fishing and bull/pair trawling	04/22/2024	10:03	4,290
("Department of Space" AND "ISRO" AND "Marine Conservation Society" AND "MCS activities" AND "satellite-based communication" AND "tracking devices" AND "transponders" AND "India")	Link	1. Expectation: Enhancement of MCS activities using satellite technology 2. Client Group: Marine Conservation Society, Department of Space, ISRO 3. Location: India 4. Impact: Improved communication and tracking in marine conservation 5. Professionals: Space technology experts, marine conservationists 6. Service: Satellite-based communication and tracking for conservation	Department of Space – ISRO for MCS activities including satellite-based communication and/or tracking devices such as transponders.	04/22/2024	13:37	20,100
("States" OR "UTs" AND "Electronic Display Boards" AND "installation and operationalization" AND "fishing harbours" AND "fishing landing centers" AND "effective surveillance" AND "dissemination of information" AND "marine fisheries" AND "disaster advisories" AND "weather forecast advisories" AND "marketing information" AND "networking of harbours and landing centers" AND "India")	Link	1. Expectation: Enhancing information dissemination and surveillance in fishing harbors and landing centers 2. Client Group: State/UT fisheries authorities, fishermen, harbor and landing center operators 3. Location: India 4. Impact: Improved communication regarding marine fisheries, weather advisories, and market information 5. Professionals: IT and marine infrastructure experts, fisheries management officials 6. Service: Information technology and surveillance in marine fisheries	States/UTs may also include Installation and Operationalization of Electronic Display Boards including their maintenance in the fishing harbours and fishing landing centers for effective surveillance, dissemination of information various aspects concerning marine fisheries including disaster, weather forecast advisories, marketing information, networking of harbours and landing centers, etc.	04/22/2024	17:26	1,460
("dedicated satellite system" AND "management of fisheries" AND "regulation of fisheries" AND "allied activities" AND "deployment" AND "India")	Link	1. Expectation: Investigating the use of satellite technology in fisheries management 2. Client Group: Fisheries management authorities, technology providers 3. Location: India 4. Impact: Enhanced management and regulatory oversight of fisheries through satellite technology 5. Professionals: Satellite and space technology experts, fisheries regulators 6. Service: Satellite-based fisheries management and regulation	Explore the deployment of a dedicated satellite system for management and regulation of fisheries and allied activities.	04/23/2024	10:40	4

("Kerala government" AND "three tier system" AND "Fisheries Management Councils" AND "Fishing Village Management Council" AND "District Fisheries Management Council" AND "State Fisheries Management Council")	Link	1. Expectation: Establishment of a structured fisheries management system 2. Client Group: Fishery professionals and administrative bodies at village, district, and state levels in Kerala 3. Location: Kerala, India 4. Impact: Improved fisheries management and coordination at different administrative levels 5. Professionals: Local fisheries managers, district and state fisheries authorities 6. Service: Hierarchical fisheries management and governance	The Government may, for the effective management and surveillance of marine fisheries and for effectively carrying out the provisions of this Act, by notification in the Gazette, constitute a three tier system of Fisheries Management Councils , namely:- (a) Fishing Village Management Council; (b) District Fisheries Management Council; (c) State Fisheries Management Council;	04/23/2024	12:49	1,14,000
("master plan" AND "infrastructure development" AND "next ten years" AND "Indian marine fisheries")	Link	1. Expectation: Creation of a long-term development master plan 2. Client Group: Indian marine fisheries authorities and stakeholders 3. Location: India 4. Impact: Strategic infrastructure development in marine fisheries 5. Professionals: Fisheries management planners, infrastructure development experts 6. Service: Long-term planning and infrastructure development in marine fisheries	A master plan for the development of infrastructure for the next ten years would be drawn up.	04/23/2024	16:12	10

S7.
Information Reliability

We assess Information Reliability by giving primary consideration to government publications, as these are official documents reflecting national and state policies in India's marine fisheries sector. We also prioritise academic journal articles from peer-reviewed publications, which typically undergo rigorous editorial and review processes to ensure the quality of research and analysis. Beyond these, we include reports from scientific institutions such as the Central Marine Fisheries Research Institute and Fishery Survey of India, intergovernmental organisations like the Bay of Bengal Programme, non-governmental organisations such as the International Collective in Support of Fishworkers, national news outlets (e.g. The Hindu and The Times of India), regional news sources (e.g. Manorama News), government fisheries databases, and interviews with experts (policy specialists, researchers, and government officials).
In evaluating each document, we examine consistency of information regarding the publisher, the author's credentials, and publication dates, thereby reinforcing both relevance and reliability. By following this process, the information included in our review remains authoritative and reflective of current understandings and practices in the field.

Source Reliability

To determine the reliability of the sources, we adopt a systematic process that considers relevance, currency, and accuracy. In terms of relevance, all selected documents must directly address parameters of marine fisheries policies and procedures under investigation, with specific reference to India and Kerala. We confine our search largely to credible government websites (including those of central and state ministries), official policy documents, and reputable news outlets (e.g. The Hindu, The Indian Express) that report on fisheries issues.

Regarding currency, priority is accorded to recent publications and data sources offering the most up-to-date insights into evolving policies and developments. This helps capture the latest progress and prospects relevant to the policies under review. In the interest of accuracy, key facts and statistics are verified through multiple sources, including consultation with experts and
cross-checking in the literature. Where inconsistencies arise, we revert to the primary document or seek advice from a subject-matter expert to resolve ambiguities. This multi-step verification process enables the study to present reliable, timely, and factually consistent information.

Relevance

When determining Relevance, we focus on sources that offer detailed information about the formulation, implementation, and outcomes of the marine fisheries policies we are examining. Sources that merely mention these policies without providing substantial detail receive lower priority. Similarly, material that touches only briefly on the subject or does not elaborate on its connection to our specific policy questions is considered less relevant.

By applying these relevance criteria methodically, we ensure that our literature collection is optimised to capture the most pertinent data and documents for addressing our research objectives. This process, in combination with our checks for Information Reliability and Source Reliability, allows us to assemble a robust evidence base for evaluating India's marine fisheries policies. Table 1 provides details of the scoring method of evidence based on the ISR method used for this study.

Table 1. Criteria for Scoring the Weight of Evidence (ISR).

Score	Information Reliability (I)	Source Reliability (S)	Relevance (R)
5	Extremely robust approach: Approach or data collection method is thoroughly tested or validated; details are well-documented, and evidence is peer-reviewed or comes from widely recognised, credible sources.	Considerable trust: The source is authoritative, transparent, and unlikely to suffer from conflicts of interest or bias (e.g. highly reputable organisations, peer-reviewed journals).	Extremely relevant: Context in which the evidence was generated is almost identical to the policy situation under consideration.
4	Moderately robust approach: Some minor limitations exist, but the evidence is methodologically	Moderate trust: The source is generally considered reliable and has limited bias,	Very relevant: The evidence aligns closely with the context, location, and scope under investigation, with only slight differences.

	sound and well-supported by data or direct observation.	though not as firmly established as a top-tier authority.	
3	Somewhat reliable: Approach or data may have moderate weaknesses or omissions (e.g. incomplete methodology, limited peer review), yet still offers useful insights.	Some trust: The source has some credibility, though there may be questions about its expertise or partiality.	Somewhat relevant: The evidence addresses a related context or setting but may differ in key aspects, requiring caution in application.
2	Limited reliability: The origin or rigour of the approach is unclear (e.g. basic claim with minimal supporting data); accuracy cannot be fully verified.	Limited trust: The source is not well-established, or the evidence cannot be traced back to its original provider (e.g. ‘zombie data’).	Moderately relevant: The evidence relates in part to the policy questions but diverges significantly in terms of species, socio-cultural setting, or ecological context.
1	Notably weak approach: Significant concerns exist over data validity, plausibility, or methodology; the evidence may be largely anecdotal or unsupported by details.	Serious concerns: The source demonstrates potential bias or conflict of interest, with little or no external validation (e.g. self-published without review).	Low relevance: The evidence touches only tangentially on the topic or policy questions, offering minimal utility for the specific context examined.

0	No reliability: No credible methodology or supporting data are available; the claim is highly suspect or unverifiable.	No trust: The source is deemed unreliable, unverifiable, or thoroughly discredited; it may not exist in any verifiable form (complete ‘zombie data’)	No relevance: The evidence does not address the policy question at all and cannot inform the specific context under consideration.

S8. README for Supplementary File Submission

Title: Evidence Strength Table for Bridging Policy and Practice: A review of Monitoring, Control, and Surveillance in Managing Illegal Fishing in India
Authors: Abhishek, Claire Collins, Ana Nuno, Divya Karnad

Introduction: This document serves as supplementary material to the manuscript titled Bridging Policy and Practice: A review of Monitoring, Control, and Surveillance in Managing Illegal Fishing in India submitted to Marine Policy. The file provides a comprehensive table of evidence, including hyperlinks to online evidences used in the study. All links provided in the supplementary material are active and verified as of 21/01/2025.

File Description

The accompanying supplementary file, titled **"Evidence_Strength_Table.pdf"**, is a Pdf file document containing the following information:

1. **Categories of Evidence:** Organized by study parameters.
2. **Hyperlinked Sources:** Direct links to evidence for validation and further exploration.

Purpose

The table consolidates critical references supporting the findings of the study and ensures transparency and reproducibility of the research.

File Contents

The supplementary file consists of:

1. **Column Headers:**
    - Search string used
    - Evidence (source hyperlinked)
    - Description/Notes
    - ISR Score
2. **Details on Evidence:**
   Each row contains specific entries describing the evidence used in the research.

Access and Longevity

While every effort has been made to ensure the links provided are active at the time of submission, online content may be relocated or removed by the hosting websites in the future. To mitigate this:

Archival Copies: All links provided in the supplementary material are active and verified as of 21/01/2025.

Instructions for Use

1. Open the CSV file using any compatible spreadsheet software.
2. Click on any hyperlink in the "Evidence" column to navigate directly to the referenced content.
3. Use the ‘Information Reliability’, ‘Source Reliability’, ‘Relevance’ columns to assess the significance of each evidence entry.

Contact Information

For questions, clarifications, or issues accessing the file, please contact:

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S9. Implementation database & ISR scores						
Search string	**Evidence**	**Information Reliability (out of 5)**	**Source Reliability (out of 5)**	**Relevance (out of 5)**	**Total (out of 15)**	**MCS theme addressed**
("knowledge management" AND "marine fisheries sector" AND "resource abundance and distribution" AND "real-time resource maps" AND "productivity assessments" AND "Potential Fishing Zone advisories" AND "PFZ" AND "weather forecasts" AND "fishers benefit" AND "India")	BOBP 2018	5	5	5	15	Monitoring
("knowledge management" AND "marine fisheries sector" AND "resource abundance and distribution" AND "real-time resource maps" AND "productivity assessments" AND "Potential Fishing Zone advisories" AND "PFZ" AND "weather forecasts" AND "fishers benefit" AND "India")	BOBP 2017	5	5	4	14	Monitoring
("knowledge management" AND "marine fisheries sector" AND "resource abundance and distribution" AND "real-time resource maps" AND "productivity assessments" AND "Potential Fishing Zone advisories" AND "PFZ" AND "weather forecasts" AND "fishers benefit" AND "India")	CMFRI	5	5	5	15	Monitoring
("knowledge management" AND "marine fisheries sector" AND "resource abundance and distribution" AND "real-time resource maps" AND "productivity assessments" AND "Potential Fishing Zone advisories" AND "PFZ" AND "weather forecasts" AND "fishers benefit" AND "India")	ICSF	5	5	5	15	Monitoring

("knowledge management" AND "marine fisheries sector" AND "resource abundance and distribution" AND "real-time resource maps" AND "productivity assessments" AND "Potential Fishing Zone advisories" AND "PFZ" AND "weather forecasts" AND "fishers benefit" AND "India")	ICAR	5	5	4	14	Monitoring
("knowledge management" AND "marine fisheries sector" AND "resource abundance and distribution" AND "real-time resource maps" AND "productivity assessments" AND "Potential Fishing Zone advisories" AND "PFZ" AND "weather forecasts" AND "fishers benefit" AND "India")	PFZ	5	5	5	15	Monitoring
("knowledge management" AND "marine fisheries sector" AND "resource abundance and distribution" AND "real-time resource maps" AND "productivity assessments" AND "Potential Fishing Zone advisories" AND "PFZ" AND "weather forecasts" AND "fishers benefit" AND "India")	VISION 2030	5	4	4	13	Monitoring
("national-level platform" AND "oversee data process" AND "incentives for agencies" AND "data collection" AND "data collation" AND "data dissemination" AND "India" AND "Marine fisheries")	Ministry of Statistics	4	4	3	11	Monitoring

("national-level platform" AND "oversee data process" AND "incentives for agencies" AND "data collection" AND "data collation" AND "data dissemination" AND "India" AND "Marine fisheries")	CMFRI	5	5	3	13	Monitoring
("national-level platform" AND "oversee data process" AND "incentives for agencies" AND "data collection" AND "data collation" AND "data dissemination" AND "India" AND "Marine fisheries")	CMFRI	5	5	1	11	Monitoring
("national-level platform" AND "oversee data process" AND "incentives for agencies" AND "data collection" AND "data collation" AND "data dissemination" AND "India" AND "Marine fisheries")	NMLRDC	5	5	2	12	Monitoring
("national-level platform" AND "oversee data process" AND "incentives for agencies" AND "data collection" AND "data collation" AND "data dissemination" AND "India" AND "Marine fisheries")	ICAR-CMFRI	5	5	4	14	Monitoring
("national-level platform" AND "oversee data process" AND "incentives for agencies" AND "data collection" AND "data collation" AND "data dissemination" AND "India" AND "Marine fisheries")	FSI	5	5	3	13	Monitoring

("PMMSY" AND "fisheries documentation" AND "database of fishers" AND "marine and inland fisheries" AND "multipurpose support services" AND "fisheries management" AND "coastal villages" AND "Sagar Mitras" AND "support services to marine fishermen" AND "fish catch documentation" AND "India")	Bharatshakti	5	4	5	14	Monitoring
("PMMSY" AND "fisheries documentation" AND "database of fishers" AND "marine and inland fisheries" AND "multipurpose support services" AND "fisheries management" AND "coastal villages" AND "Sagar Mitras" AND "support services to marine fishermen" AND "fish catch documentation" AND "India")	Handbook on fisheries statistics 2022	5	5	5	15	Monitoring
("PMMSY" AND "fisheries documentation" AND "database of fishers" AND "marine and inland fisheries" AND "multipurpose support services" AND "fisheries management" AND "coastal villages" AND "Sagar Mitras" AND "support services to marine fishermen" AND "fish catch documentation" AND "India")	Loksabha	5	5	2	12	Monitoring
("PMMSY" AND "fisheries documentation" AND "database of fishers" AND "marine and inland fisheries" AND "multipurpose support services" AND "fisheries management" AND "coastal villages" AND "Sagar Mitras" AND "support services to marine fishermen" AND "fish catch documentation" AND "India")	NFDB	5	5	3	13	Monitoring

("data collection" AND "periodic re-validation" AND "fishery resources potential" AND "fishery management advice" AND "national regional global conventions" AND "agreements" AND "fish data collection" AND "fishers survey" AND "strengthening fisheries database" AND "India")	FSI	5	5	1	11	Monitoring
("fishing vessel registration" AND "Keral	PPT	5	5	5	15	Monitoring
("fishing vessel registration" AND "Keral	Form link	5	5	5	15	Monitoring
("Information Technology" AND "IT" AND Technology" AND "ST" AND "optimum u "support of fisher community" AND "ber fisheries" AND "India")	Kumar 2018	4	4	5	13	Monitoring
("Information Technology" AND "IT" AND Technology" AND "ST" AND "optimum u "support of fisher community" AND "ber fisheries" AND "India")	GEMINI	4	4	5	13	Monitoring
("strengthening MCS functions" AND ("log books" OR "movement tokens" OR "colour coding of fishing vessels" OR "biometric cards" OR "space technologies" OR "Vessel Monitoring System" OR "Automatic Identification System") AND fishers)	National Maritime Foundation	5	5	5	15	Monitoring
("strengthening MCS functions" AND ("log books" OR "movement tokens" OR "colour coding of fishing vessels" OR "biometric cards" OR "space technologies" OR "Vessel Monitoring System" OR "Automatic Identification System") AND fishers)	National Maritime Foundation	5	5	4	14	Monitoring

("strengthening MCS functions" AND ("log books" OR "movement tokens" OR "colour coding of fishing vessels" OR "biometric cards" OR "space technologies" OR "Vessel Monitoring System" OR "Automatic Identification System") AND fishers)	ICSF	5	5	5	15	Monitoring
("strengthening MCS functions" AND ("log books" OR "movement tokens" OR "colour coding of fishing vessels" OR "biometric cards" OR "space technologies" OR "Vessel Monitoring System" OR "Automatic Identification System") AND fishers)	ICSF	5	5	5	15	Monitoring
("strengthening MCS functions" AND ("log books" OR "movement tokens" OR "colour coding of fishing vessels" OR "biometric cards" OR "space technologies" OR "Vessel Monitoring System" OR "Automatic Identification System") AND fishers)	The Hindu	5	5	4	14	Monitoring
("strengthening MCS functions" AND ("log books" OR "movement tokens" OR "colour coding of fishing vessels" OR "biometric cards" OR "space technologies" OR "Vessel Monitoring System" OR "Automatic Identification System") AND fishers)	The Indian Express	5	5	4	14	Monitoring
("strengthening MCS functions" AND ("log books" OR "movement tokens" OR "colour coding of fishing vessels" OR "biometric cards" OR "space technologies" OR "Vessel Monitoring System" OR "Automatic Identification System") AND fishers)	Link 1	5	5	5	15	Monitoring

("strengthening MCS functions" AND ("log books" OR "movement tokens" OR "colour coding of fishing vessels" OR "biometric cards" OR "space technologies" OR "Vessel Monitoring System" OR "Automatic Identification System") AND fishers)	Link 2	4	4	5	13	Monitoring
("strengthening MCS functions" AND ("log books" OR "movement tokens" OR "colour coding of fishing vessels" OR "biometric cards" OR "space technologies" OR "Vessel Monitoring System" OR "Automatic Identification System") AND fishers)	Link 3	4	4	5	13	Monitoring
("strengthening MCS functions" AND ("log books" OR "movement tokens" OR "colour coding of fishing vessels" OR "biometric cards" OR "space technologies" OR "Vessel Monitoring System" OR "Automatic Identification System") AND fishers)	Link 4	5	5	5	15	Monitoring
("strengthening MCS functions" AND ("log books" OR "movement tokens" OR "colour coding of fishing vessels" OR "biometric cards" OR "space technologies" OR "Vessel Monitoring System" OR "Automatic Identification System") AND fishers)	Link 1	5	5	4	14	Monitoring
("strengthening MCS functions" AND ("log books" OR "movement tokens" OR "colour coding of fishing vessels" OR "biometric cards" OR "space technologies" OR "Vessel Monitoring System" OR "Automatic Identification System") AND fishers)	Link 2	5	5	4	14	Monitoring

("strengthening MCS functions" AND ("log books" OR "movement tokens" OR "colour coding of fishing vessels" OR "biometric cards" OR "space technologies" OR "Vessel Monitoring System" OR "Automatic Identification System") AND fishers)	Link 3	5	5	3	13	Monitoring
("strengthening MCS functions" AND ("log books" OR "movement tokens" OR "colour coding of fishing vessels" OR "biometric cards" OR "space technologies" OR "Vessel Monitoring System" OR "Automatic Identification System") AND fishers)	Link 1	5	4	3	12	Monitoring
("strengthening MCS functions" AND ("log books" OR "movement tokens" OR "colour coding of fishing vessels" OR "biometric cards" OR "space technologies" OR "Vessel Monitoring System" OR "Automatic Identification System") AND fishers)	Link 2	5	4	1	10	Monitoring
("strengthening MCS functions" AND ("log books" OR "movement tokens" OR "colour coding of fishing vessels" OR "biometric cards" OR "space technologies" OR "Vessel Monitoring System" OR "Automatic Identification System") AND fishers)	Link 3	5	5	5	15	Monitoring
("motorised fishing vessels" AND "beneficiaries support" AND ("DAT" OR "communication device" OR "tracking device") AND "prescribed unit cost" AND "recommendations" AND "States" OR "UTs")	Link	5	5	5	15	Control

("motorised fishing vessels" AND "beneficiaries support" AND ("DAT" OR "communication device" OR "tracking device") AND "prescribed unit cost" AND "recommendations" AND "States" OR "UTs")	National Maritime Foundation	5	5	5	15	Control
("motorised fishing vessels" AND "beneficiaries support" AND ("DAT" OR "communication device" OR "tracking device") AND "prescribed unit cost" AND "recommendations" AND "States" OR "UTs")	Link 2	5	5	5	15	Control
("patrolling high seas" AND "Areas Beyond National Jurisdiction" AND "Vulnerable Marine Ecosystems" AND "prevent significant adverse impacts" AND "Potential Yield Estimates")	Link	5	5	5	15	Control
("FSI" AND "Marine Fisheries forecasting" AND "Remote Sensing" AND "India" AND ("Artisanal" OR "Mechanized" OR "Industrial") AND "fishing sectors")	Link 1	5	5	2	12	Control
("FSI" AND "Marine Fisheries forecasting" AND "Remote Sensing" AND "India" AND ("Artisanal" OR "Mechanized" OR "Industrial") AND "fishing sectors")	Link 2	5	5	2	12	Control
("FSI" AND "Marine Fisheries forecasting" AND "Remote Sensing" AND "India" AND ("Artisanal" OR "Mechanized" OR "Industrial") AND "fishing sectors")	Link 3	5	5	2	12	Control

("FSI" AND "Marine Fisheries forecasting" AND "Remote Sensing" AND "India" AND ("Artisanal" OR "Mechanized" OR "Industrial") AND "fishing sectors")	Link 4	5	5	5	15	Control
("capacity appraisal framework" AND "fishing capacity" AND ("Potential Yield estimates" OR "PY estimates") AND "regular stock assessments" AND "sustainable harvest" AND "fish stocks" AND "India")	Link 1	4	4	3	11	Control
("capacity appraisal framework" AND "fishing capacity" AND ("Potential Yield estimates" OR "PY estimates") AND "regular stock assessments" AND "sustainable harvest" AND "fish stocks" AND "India")	Link 2	5	5	2	12	Control
("MCS" AND "strengthening" AND "improvements" AND "chip-based smart registration cards" AND "mandatory use of logbooks" AND ("paper" OR "electronic") AND "space technologies" AND "IT tools" AND "India")	Link 1	5	5	5	15	Control
("MCS" AND "strengthening" AND "improvements" AND "chip-based smart registration cards" AND "mandatory use of logbooks" AND ("paper" OR "electronic") AND "space technologies" AND "IT tools" AND "India")	Link 2	5	5	3	13	Control

("MCS" AND "strengthening" AND "improvements" AND "chip-based smart registration cards" AND "mandatory use of logbooks" AND ("paper" OR "electronic") AND "space technologies" AND "IT tools" AND "India")	Link 3	4	3	5	12	Control
("exploratory surveys" AND "charting of fishing grounds" AND "fish stocks assessment" AND "Indian EEZ" AND "adjoining high seas" AND "fisheries research" AND "surveys on request" AND ("States" OR "UTs"))	Webpage Link	5	5	2	12	Control
("Marine Protected Areas" AND "MPAs" AND "review" AND "periodic evaluation" AND "legislative support" AND "tenure rights" AND "traditional fishers" AND "livelihood" AND "conservation measures" AND "India")	Webpage Link	5	5	5	15	Control
("Marine Protected Areas" AND "MPAs" AND "review" AND "periodic evaluation" AND "legislative support" AND "tenure rights" AND "traditional fishers" AND "livelihood" AND "conservation measures" AND "India")	Webpage Link	5	5	5	15	Control
("Ecosystem Approach to Fisheries Management" AND "EAFM" AND "marine ecosystem" AND "living constituents" AND "non-living constituents" AND "social attributes" AND "economic needs" AND "stakeholders" AND "India")	Webpage Link	5	5	5	15	Control

("International cooperation" AND "Coastal and Marine Spatial Planning" AND "CMSP" AND "Indian Ocean Rim Association" AND "IORA" AND "best practices" AND "technology transfer")	Link 1	5	5	5	15	Control
("International cooperation" AND "Coastal and Marine Spatial Planning" AND "CMSP" AND "Indian Ocean Rim Association" AND "IORA" AND "best practices" AND "technology transfer")	Link 2	5	5	5	15	Control
("International cooperation" AND "Coastal and Marine Spatial Planning" AND "CMSP" AND "Indian Ocean Rim Association" AND "IORA" AND "best practices" AND "technology transfer")	LInk 3	5	5	5	15	Control
("institutional mechanism" AND "conflict reduction" AND "conflict management" AND "inter-State conflicts" AND "international conflicts" AND "neighbouring countries" AND "marine fisheries management" AND "India")	Link	4	4	5	13	Control
("India-Iceland cooperation" AND "fisheries management" AND "institutional framework" AND "long-term conservation" AND "sustainable use of fishery resources" AND "Exclusive Economic Zone" AND "EEZ" AND "Technological advice" AND "Vessel Monitoring System" AND "VMS" AND "coastal fishing areas" AND "deep-sea fishing areas")	Link	5	5	5	15	Control

("India-Norway MoU" AND "biological research in fisheries" AND "technical knowledge in fisheries" AND "fisheries management standards" AND "comprehensive approach to fisheries management")	Link 1	5	5	5	15	Control
("India-Norway MoU" AND "biological research in fisheries" AND "technical knowledge in fisheries" AND "fisheries management standards" AND "comprehensive approach to fisheries management")	Link 2	5	5	5	15	Control
("India-Norway MoU" AND "biological research in fisheries" AND "technical knowledge in fisheries" AND "fisheries management standards" AND "comprehensive approach to fisheries management")	Link 3	5	5	5	15	Control
("India-Norway MoU" AND "biological research in fisheries" AND "technical knowledge in fisheries" AND "fisheries management standards" AND "comprehensive approach to fisheries management")	Link 4	5	5	5	15	Control
("ReALCraft" AND "online uniform registration and licensing system" AND "fishing vessels registration" AND "marine sector" AND "artisanal" AND "motorized" AND "mechanized" AND "non-mechanized fishing vessels" AND "India")	Link 1	5	5	5	15	Control

("ReALCraft" AND "online uniform registration and licensing system" AND "fishing vessels registration" AND "marine sector" AND "artisanal" AND "motorized" AND "mechanized" AND "non-mechanized fishing vessels" AND "India")	Link 2	5	5	5	15	Control
("Marine Conservation Society" AND "MCS activities" AND "Department of Fisheries" AND "maritime States" AND "UTs" AND "Coastal Marine Police" AND "Indian Coast Guard" AND "ICG" AND "strengthened engagement")	Link 1	5	5	5	15	Control
("Marine Conservation Society" AND "MCS activities" AND "Department of Fisheries" AND "maritime States" AND "UTs" AND "Coastal Marine Police" AND "Indian Coast Guard" AND "ICG" AND "strengthened engagement")	Link 2	5	5	5	15	Control
("Marine Conservation Society" AND "MCS activities" AND "Department of Fisheries" AND "maritime States" AND "UTs" AND "Coastal Marine Police" AND "Indian Coast Guard" AND "ICG" AND "strengthened engagement")	Link 3	5	5	5	15	Control
("awareness and training for fishers" AND "International Maritime Boundary Line" AND "IMBL" AND "avoid crossing" AND "India")	Link	5	5	3	13	Control

("Marine Conservation Society" AND "MCS activities" AND "Department of Fisheries" AND "maritime States" AND "UTs" AND "Coastal Marine Police" AND "Indian Coast Guard" AND "ICG" AND "strengthened engagement")	Link 1	5	5	3	13	Control
("Marine Conservation Society" AND "MCS activities" AND "Department of Fisheries" AND "maritime States" AND "UTs" AND "Coastal Marine Police" AND "Indian Coast Guard" AND "ICG" AND "strengthened engagement")	Link 3	5	5	4	14	Control
("Marine Conservation Society" AND "MCS activities" AND "Department of Fisheries" AND "maritime States" AND "UTs" AND "Coastal Marine Police" AND "Indian Coast Guard" AND "ICG" AND "strengthened engagement")	Link 1	5	5	5	15	Control
("Marine Conservation Society" AND "MCS activities" AND "Department of Fisheries" AND "maritime States" AND "UTs" AND "Coastal Marine Police" AND "Indian Coast Guard" AND "ICG" AND "strengthened engagement")	Link 3	4	4	5	13	Control
("Marine Conservation Society" AND "MCS activities" AND "Department of Fisheries" AND "maritime States" AND "UTs" AND "Coastal Marine Police" AND "Indian Coast Guard" AND "ICG" AND "strengthened engagement")	Link 4	4	3	2	9	Control

("Marine Fishing Regulation Acts" AND "MFRAs" AND "maritime States" AND "UTs" AND "vessel building yards registration" AND "annual survey of fishing vessels" AND "seaworthiness" AND "inspection of communication & safety appliances" AND "IRS" AND "Technical Organizations" AND "standard design specifications for fishing vessels" AND "construction material" AND "continuous monitoring" AND "vessel construction control" AND "Central and State Governments" AND "India")	Link 1	5	5	1	11	Control
("Marine Fishing Regulation Acts" AND "MFRAs" AND "maritime States" AND "UTs" AND "vessel building yards registration" AND "annual survey of fishing vessels" AND "seaworthiness" AND "inspection of communication & safety appliances" AND "IRS" AND "Technical Organizations" AND "standard design specifications for fishing vessels" AND "construction material" AND "continuous monitoring" AND "vessel construction control" AND "Central and State Governments" AND "India")	Link 2	2	2	3	7	Control
("boat-building yards registration" AND "fishing unit construction licensing" AND "new fishing unit" AND "India")	Link 1	5	5	3	13	Control
("boat-building yards registration" AND "fishing unit construction licensing" AND "new fishing unit" AND "India")	Link 2	5	5	3	13	Control

("Marine Conservation Society" AND "MCS activities" AND "Department of Fisheries" AND "maritime States" AND "UTs" AND "Coastal Marine Police" AND "Indian Coast Guard" AND "ICG" AND "strengthened engagement")	Link 1	4	4	5	13	Control
("Marine Conservation Society" AND "MCS activities" AND "Department of Fisheries" AND "maritime States" AND "UTs" AND "Coastal Marine Police" AND "Indian Coast Guard" AND "ICG" AND "strengthened engagement")	Link 2	3	3	5	11	Control
("control in fishing sector" AND "maximum number of fishing vessels" AND "different categories" AND "minimum mesh size" AND "length of fishing nets" AND "size of nets" AND "Kerala")	Link 1	5	5	5	15	Control
("strict action" AND "destructive fishing practices" AND "Kerala coast" AND "dynamite fishing" AND "light fishing" AND "Fish Aggregating Devices" AND "FADs" AND "poison fishing" AND "bull trawling" AND "pair trawling")	Link 1	5	5	5	15	Control
("strict action" AND "destructive fishing practices" AND "Kerala coast" AND "dynamite fishing" AND "light fishing" AND "Fish Aggregating Devices" AND "FADs" AND "poison fishing" AND "bull trawling" AND "pair trawling")	Link 1	5	5	5	15	Control

("strict action" AND "destructive fishing practices" AND "Kerala coast" AND "dynamite fishing" AND "light fishing" AND "Fish Aggregating Devices" AND "FADs" AND "poison fishing" AND "bull trawling" AND "pair trawling")	Link 2	4	4	3	11	Control
("control in fishing sector" AND "maximum number of fishing vessels" AND "different categories" AND "minimum mesh size" AND "length of fishing nets" AND "size of nets" AND "India")	Link 1	4	4	4	12	Control
("sound mechanism" AND "port" AND "at sea" AND "Indian fishing fleet" AND "IUU fishing" AND "Exclusive Economic Zone" AND "EEZ" AND "high seas" AND "EEZs of other nations")	Link 1	5	5	4	14	Control
("Kerala government" AND "three tier system" AND "Fisheries Management Councils" AND "Fishing Village Management Council" AND "District Fisheries Management Council" AND "State Fisheries Management Council")	Link 1	5	5	5	15	Control
("Kerala government" AND "three tier system" AND "Fisheries Management Councils" AND "Fishing Village Management Council" AND "District Fisheries Management Council" AND "State Fisheries Management Council")	Link 2	5	5	4	14	Control

("Kerala government" AND "three tier system" AND "Fisheries Management Councils" AND "Fishing Village Management Council" AND "District Fisheries Management Council" AND "State Fisheries Management Council")	Link 3	5	5	4	14	Control
("master plan" AND "infrastructure devel "next ten years" AND "Indian marine fish	Link 1	5	5	5	15	Control
("master plan" AND "infrastructure devel "next ten years" AND "Indian marine fish	Link 2	5	5	5	15	Control
("Department of Space" AND "ISRO" AND "Marine Conservation Society" AND "MCS activities" AND "satellite-based communication" AND "tracking devices" AND "transponders" AND "India")	Link 2	5	5	5	15	Surveillance
("Department of Space" AND "ISRO" AND "Marine Conservation Society" AND "MCS activities" AND "satellite-based communication" AND "tracking devices" AND "transponders" AND "India")	Link 3	5	5	5	15	Surveillance
("Department of Space" AND "ISRO" AND "Marine Conservation Society" AND "MCS activities" AND "satellite-based communication" AND "tracking devices" AND "transponders" AND "India")	Link 4	4	4	5	13	Surveillance
("dedicated satellite system" AND "management of fisheries" AND "regulation of fisheries" AND "allied activities" AND "deployment" AND "India")	Link 1	4	4	5	13	Surveillance

("States" OR "UTs" AND "Electronic Display Boards" AND "installation and operationalization" AND "fishing harbours" AND "fishing landing centers" AND "effective surveillance" AND "dissemination of information" AND "marine fisheries" AND "disaster advisories" AND "weather forecast advisories" AND "marketing information" AND "networking of harbours and landing centers" AND "India")	Link 1	4	4	5	13	Surveillance